



# CFCM

CANADIAN FINISHING & COATINGS MANUFACTURING MAGAZINE

## Plating and Anodizing

- Pushing the Envelope in Coating Metals
- Managing Wastewater

## Industrial Finishing

- Uncomplaining Workers: the New Robots
- Designing Your Paint Booth
- Automatic Paint Spray Guns

## Paint and Coatings Manufacturing

- More Stringent Rules for Chemicals Management?
- Mixing and Dispersion
- Metallic Pigments Continue to Shine
- Waterborne Resins

**Coated Spools,  
Critical Parts  
Used in the  
Alberta Oil Patch**

**See story on page 22**





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**On the Cover:**

Coated spools are a typical oil-patch item that Harber coats.



# The Shows **Must Go On**

Trade shows don't always pack in the visitors the way they did a dozen years ago. There's far more information available online these days, and it isn't essential to travel to another city to learn what's new in your industry.

Yet trade shows continue to survive, and exhibitors promptly re-book space for the next show after one closes. At both the recent Fabtech Canada, in Toronto in March, and the April American Coatings Show in Indianapolis, visitor traf-

fic was steady, and exhibitors were kept busy talking up their newest offerings.

Shows have changed with the years. The accompanying conferences are talked up more by the organizers today, and there are also many more regional shows. Combine the unpleasantness of border or airport security with the cost of hotels, and you can see how some companies decide they don't want to send their people far to visit a show.

That said, there's nothing like the opportunity of comparing not just competing products, but differing perspectives on what works in a plant, or how to gain control over difficult problems with preparing, processing or applying coatings materials. Online forums can help, but good old, face-to-face discussions are always going to be more efficient, and more productive in terms of opening up new discussions, or exploring technical questions.

While it's impossible to quantify in commercial terms, the industry community is also an important part of the business scene. Having many of your suppliers, competitors and customers all in the same place enables a savvy sales executive to gauge business conditions. Regular customer contact does the same thing, but a show brings together more elements of your industry than you'll speak with in the course of a normal month, and provide a broader perspective on what's happening out there.

A day at a show can be exhausting, and I admit attending them isn't my idea of a fun time. But I could never dispute the value of pacing the carpets, or meeting contacts I've only known through email.

Shows have survived the internet age, the difficult economy of the past eight or nine years, and the shrinkage of North American manufacturing. They've done this, as they'll continue to do, because there isn't anything quite like them, and it's unlikely there will be in the foreseeable future.

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### Researchers Develop Ice-Repellent Coating

University of Michigan researchers have come up with a durable and inexpensive ice-repellent coating. Thin, clear and slightly rubbery to the touch, the spray-on formula, they say, could make ice slide off equipment, aircraft or car windshields. This could offer significant opportunities in industries such as energy, shipping and transportation, where ice can be a problem in cold seasons. Made of a blend of common synthetic rubbers, their formula departs from earlier approaches that relied on making surfaces either very water-repellent or very slippery.

"Researchers had been trying for years to dial down ice adhesion strength with chemistry, making more and more water-repellent surfaces," said Kevin Golovin, a doctoral student in materials science and engineering. "We've discovered a new knob to turn, using physics to change the mechanics of how ice breaks free from a surface."

Led by Anish Tuteja, associate professor of materials science and engineering, the team initially experimented with water-repelling surfaces

### Graco, Gema Celebrate Nomination as Top Workplaces

Graco Inc., parent company of powder coating equipment producer Gema, has been recognized as one of the 2016 Best Workplaces in Manufacturing and Production, according to Fortune Magazine.

"This recognition from Fortune is a reflection of our engaged and committed workforce at Graco," said Patrick J. McHale, Graco's president and CEO. "Graco employees make this a great place to work every day, which not only positively impacts their coworkers, but also our shareholders, suppliers, distributor partners, end users and the community."

Graco ranked No. 10 on the internationally-recognized list, a ranking based on employees' own assessments of the trust they feel toward leaders, the pride they take in their jobs and the camaraderie they experience with coworkers. Out of the employees surveyed worldwide, 97 percent expressed great pride in Graco.

The top workplaces as a collective group for 2016 have an employee turnover average of 7.2 percent, about half the national industry average of 13%. Graco's employee turnover the past year was four percent.



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as well, but found these were not effective at shedding ice. But during their experiments, they noticed that rubbery coatings worked best for repelling ice, even if they were not water-repellent. Eventually, they found the ability to shed water was unimportant, since the coatings repelled ice through a different phenomenon called 'interfacial cavitation.'

Golovin explained that two rigid surfaces – for example, ice and a car's windshield – can stick tightly together, and need considerable force to break the bond between them. But because of interfacial cavitation, a solid material stuck to a rubbery surface behaves differently. Even a small amount of force can deform the rubbery surface, breaking the solid free.

"Nobody had explored the idea that rubberiness can reduce ice adhesion," Tuteja added. "Ice is frozen water, so people assumed that ice-repelling surfaces had to also repel water. That was very limiting."

The new approach makes it possible to improve durability significantly compared to previous icephobic coatings, which relied on fragile materials that lost their ice-shedding abilities after a few freeze-thaw cycles. The new coatings stood up to a variety of lab tests including peel tests, salt spray corrosion, high temperatures, mechanical abrasion and hundreds of freeze-thaw cycles.

The research team also found that by slightly altering the smoothness and rubberiness of the coating, they could fine-tune its ice repellency and durability. Softer surfaces tend to be more ice-repellent but less durable, while the opposite is true for harder coatings. Golovin believes this flexibility will allow them to create coatings for a huge variety of applications.

"An airplane coating, for example, would need to be extremely durable, but it could be less ice-repellent because of high winds and vibration that would help push ice off," Golovin said. "A freezer coating, on the other hand, could be less durable, but would need to shed ice with just the force of gravity and slight vibrations. The great thing about our approach is that it's easy to fine-tune it for any given application."

"I think the first commercial application will be in linings for commercial frozen food packaging, where sticking is often a problem. We'll probably see that within the next year," Tuteja said. "Using this technology in places like cars and airplanes will be very complex because of the stringent durability and safety requirements,

### Sherwin-Williams Buys Valspar

Sherwin-Williams Co. is buying Valspar Corp. in a deal the buyer says is worth \$11.3-billion. The purchaser has agreed to pay \$113 per share. Valspar has more than doubled in value in the past five years, and grew well beyond the norm on the Standard and Poors 500 Index.

The purchase gives Sherwin-Williams broader access to do-it-yourself painters, who mostly buy their supplies at big retailers rather than at the contractor-oriented stores owned by Sherwin-Williams. Valspar, reportedly, has a strong connection with Lowe's and Ace hardware stores in the US.

John G. Morikis, president and CEO of Sher-








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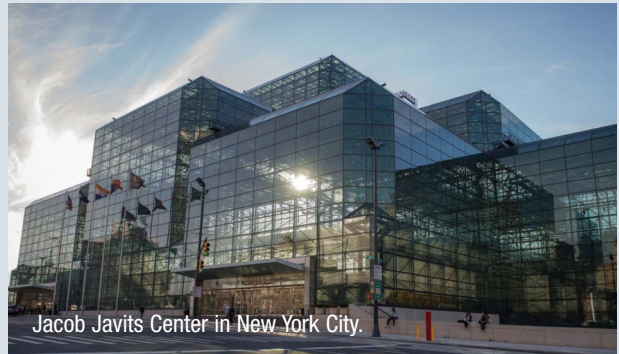


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### Chem Show to Return to New York in 2017



Jacob Javits Center in New York City.

The biennial Chem Show returns to the Javits Center in New York City in October of next year. This event showcases the newest innovations in chemical process equipment and technology. Every odd year, the event opens its doors to thousands of engineers, plant managers and other CPI professionals who are looking for new ways to optimize their process operations.

The show attracts over 5,000 total attendance and over 300 exhibiting companies. In total, there is more than 30,000 net sq ft of exhibit space.

The event runs from Tuesday, October 31 to Thursday, November 2, and features educational seminars as well as the show itself.

win-Williams, said, "Valspar is an excellent strategic fit with Sherwin-Williams. The combination expands our brand portfolio and customer relationships in North America, significantly strengthens our Global Finishes business, and extends our capabilities into new geographies and applications, including a scale platform to grow in Asia-Pacific and EMEA [Europe, the Middle East and Africa].

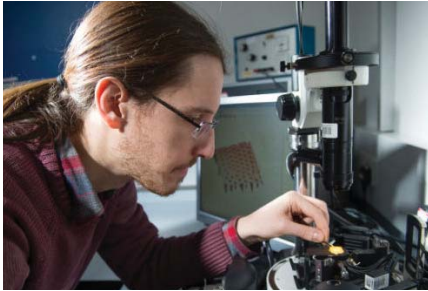
"Customers of both companies will benefit from our increased product range, enhanced technology and innovation capabilities, and the transaction's clearly defined cost synergies. We have tremendous respect for the expertise and dedication of the Valspar team and we are excited about the opportunities that this combination will provide to both companies' employees. Sherwin-Williams will continue to be headquartered in Cleveland and we intend to maintain a significant presence in Minneapolis."

Valspar is also strong in coatings for food and beverage packaging, and for steel coils. Last year's combined sales for the two firms were about \$15.6-billion. This is rather more than \$1-billion above PPG Industries Inc., and substantially larger than the next-biggest supplier in the field, AkzoNobel NV, with \$11.1 billion. Sherwin-Williams values the deal at \$11.3-billion, including the assumption of debt.

The proposal includes a cut to the purchase price should antitrust regulators demand aggressive divestitures. If the buyer is forced to sell businesses representing more than \$650-million of Valspar's 2015 revenue, the price drops by \$8 a share. Sherwin could walk away entirely if divestitures climb to \$1.5-billion of revenue.



## Study Shows How Coatings Dry



Co-author Nacho Martín-Fabiani preparing a paint sample for analysis with an Atomic Force Microscope.

Researchers from the University of Surrey in the UK, in collaboration with the Université Claude Bernard, Lyon, France, have used computer simulation and materials experiments to show how when different sized particles in coatings such as paints dry, the coating spontaneously forms two layers. This mechanism, they believe, can be used to control the properties at the top and bottom of coatings independently, which could help increase performance of coatings across industries as diverse as beauty and pharmaceuticals.

Dr. Andrea Fortini, of the University of Surrey and lead author of the researchers' paper, explained, "When coatings such as paint, ink or even outer layers on tablets are made, they work by spreading a liquid containing solid particles onto a surface, and allowing the liquid to evaporate. This is nothing new, but what is exciting is that we've shown that during evaporation, the small particles push away the larger ones, remaining at the top surface whilst the larger are pushed to bottom. This happens naturally.

"This type of 'self-layering' in a coating could be very useful. For example, in a sun screen, most of the sunlight-blocking particles could be designed to push their way to the top, leaving particles that can adhere to the skin near the bottom of the coating. Typically the particles used in coatings have sizes that are 1000 times smaller than the width of a human hair so engineering these coatings takes place at a microscopic level."

The team is continuing to work on such research to understand how to control the width of the layer by changing the type and amount of small particles in the coating and explore their use in industrial products such as paints, inks, and adhesives. The funding for this work comes from the EU project BARRIERPLUS, which aims at the reduction of VOCs in paints.

## Walter Surface Technologies Named Top Employer Again

Walter Surface Technologies, a global supplier of surface treatment technologies has been selected as one of Mediacorp Canada Inc.'s Top Small & Medium Employers for a second year in a row.

"Being recognized as one of Canada's Top

Small & Medium Employers for the second year running reinforces Walter's core purpose of contributing to our customers' success by helping them work better. As a company, we strive to offer only the best, and that extends to our employees as much as to our clients," said president and chief operating officer Michael Christodoulou.

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The editors of Canada's Top 100 Employers use eight criteria to honor the top Canadian employers: physical workplace; work atmosphere and social; health, financial & family benefits; vacation and time off; employee communications; performance management; training and skills development; and community involvement.

Over a thousand Canadian employers took part in the 2016 Best Employers studies. These employers were compared to other similar organizations in their field to determine which offers the most progressive and forward thinking programs.

"Walter prides itself on delivering the industry's best products, services and support, which we are able to consistently achieve thanks to the company's LEED Gold Certified head office, outstanding company culture, strong benefits programs, and performance reward systems," added Christodoulou. "All employees are encouraged to strive for excellence and they are empowered to help achieve our corporate vision. As a result, Walter has built a thriving work environment and both our employees and our customers benefit from that."

### **Sika Corp. Buys L. M. Scofield**

Specialty chemical company Sika Corp. has acquired L.M. Scofield, a 100-year-old North American producer of color additives and decorative products for concrete. Terms of the transaction, announced on April 1, were not disclosed.

Based in Los Angeles, with additional production facilities in Atlanta, L.M. Scofield offers a comprehensive range of color products to serve customers in the fast-growing decorative concrete market of North America. The company generated sales of \$17.8-million in 2015.

"The acquisition of L.M. Scofield further accelerates our growth strategy for North America," said Christoph Ganz, regional manager North America, Sika. "It provides us with a proven, industry leader, and a number one brand position in colors for new concrete and refurbishment.

"We proudly welcome L.M. Scofield's employees to the Sika team and are excited about growing our business together," he said.

Over the past two years, Sika says it has expanded its production footprint for mortars and admixtures with four new plants—in Denver,

Atlanta, Philadelphia and Vancouver, bringing its total number of manufacturing facilities in North America to 18.

In addition, Sika Corp. also acquired the mortar company BMI, in 2015, to complete the supply chain in the dynamic Californian market, the company said. Sika, based in Lyndhurst, NJ, is the largest company of the Sika Group, a global supplier of specialty chemicals for construction, industrial and automotive markets.

### **Active Minerals Expands Capacity**

Active Minerals International (AMI), a global supplier of gellant attapulgite for the coatings, adhesives, sealants, and other industries, has announced it is undertaking process improvements to expand capacity. The initiatives, according to president, Dennis C. Parker, are aligned with increasing demand in AMI's major markets and new developments in international coatings markets.

AMI's process improvements involve a number of projects from debottlenecking to process efficiencies, such as mill feed automation, process flow changes and enhanced utilization of state-

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of-the-art manufacturing data management software. In addition, existing classifiers are being upgraded to produce more paint grade products. Longer-term projects, supported by its mining reserves in the area, include expanded drier capacity allowing the company to meet the demands of global markets.

While Parker sites the rate of construction and infrastructure development in emerging economies as one factor increasing demand for attapulgite, he explains, “the strong interest in Active Minerals by international customers and distributors stems from the fact that paints and coatings professionals, from formulators to chief financial officers, recognize the world has only a handful of foremost authorities in attapulgite technology; and most of them are here at Active Minerals.”

AMI’s director of global business development, Jeffrey B. Carr, along with Parker, is among the individuals recognized as leading authorities in attapulgite. Carr describes additional factors driving demand.

“Min-U-Gel attapulgite customers are a priority for Active Minerals,” he says. “We bring the highest quality standards, customer service, and supply chain management practices to bear on customers’ behalf. Our Quincy, FL attapulgite operation serves our customers with more than 120,000 sq ft of storage for bagged product, allowing us to ship from inventory and maintain short lead times, even during the paint market’s busy Spring season. In addition, being one of the top 100 exporters in the US, coupled with our strong logistic capabilities, provides excellent service to our international customers.”

### Cyanobacteria Used to Create Chemicals

Scientists at Germany’s Ruhr-Universität Bochum (RUB), are researching a resource-efficient and sustainable approach to manufacturing chemicals. Dr. Robert Kourist (pictured at left), from the junior research group Mikrobielle Biotechnologie, and Dr. Marc Nowaczyk (right), the chair for Plant Biochemistry, have succeeded in genetically modifying cyanobacteria, creating cells that produce enzymes for the manufacture of basic and fine chemicals.

The bacteria also supply the energy required by the enzymes – by performing photosynthesis. A report on their work has been published in the journal *Angewandte Chemie*.

To function as biocatalysts, enzymes require

chemical energy, which is typically supplied in the form of sugar or other high-energy bonds. The researchers from Bochum have taken advantage of the fact that, like plants, cyanobacteria perform photosynthesis.

“During photosynthesis, light energy is initially converted into chemical energy. In the second step, that energy is mainly used for bind-

ing of carbon dioxide. However, a small percentage of the energy remains and can be directly utilized,” said Nowaczyk. The approach adopted by the researchers is to decouple the supplied chemical energy from carbon fixation and to use it directly for chemical reactions.

Using genetically modified living cyanobacteria as catalysts for photosynthesis-driven

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biotransformations is a new approach. The researchers say they have observed that cyanobacteria catalyze only the synthesis of the desired chemical product in their experiments and, consequently, that they function selectively. Many catalytic processes produce not just one product, but also a mirrored one, which has to be filtered out.

“The outstanding selectivity is crucial for deployment in industrial applications,” said Kourist.

The experiments have also demonstrated that enzymes from other organisms can be successfully introduced into cyanobacteria. This means that the process can be used in a number of reactions.

### Hunter Chemical Approved for Fume Suppressant

The California Air Resources Board has announced its approval of Hunter Chemical Fume Control HCA-8.4 for use in decorative chrome plating and chromic acid anodizing operations located in California. Given the strict nature of California air quality regulations, this

is seen as a significant step in broader approval of the process.

Hunter Chemical is a supplier of PFOS-free (perfluorooctane sulfonate) fume suppressants. Formulations HCA-8.1 and HCA-8.2 are in widespread use across the US, as the industry has transitioned away from PFOS-based compounds over the past couple of years. HCA-8.1 and 8.2 offer a way to manage the changes associated with EPA regulations by lowering surface tension and helping to lower chromium emissions in anodizing, decorative and hard chrome applications. HCA-8.4 will also be made available for use in all markets, both in the US and internationally.

The company is an ISO9001:2008 certified supplier of nickel, cobalt and chrome based chemicals, shipping from multiple warehouses across the US and Canada.

[www.hunterchem.com](http://www.hunterchem.com)

### Sun Chemical Issues Sustainability Report

Sun Chemical has released its 2015 Sustainability

Report, which showcases the company’s performance in eco-efficiency through established data-driven metrics. It also gives examples of how suppliers are contributing to the company’s environmental footprint.

The report describes six case studies to show how Sun Chemical’s balanced scorecard approach is used to evaluate its suppliers’ environmental performance, helping to ensure suppliers remain vigilant in developing new technology that reduces the overall environmental footprint of their products.

Highlights include how:

- Sun Chemical publication inks use a large amount of bio-derived rosins from coniferous trees
- The company’s carbon black supplier remained energy positive by generating surplus energy
- The ink division in Europe reduced car fleet emissions year over year
- The company’s logistics supplier is shifting lanes from over-the-road trucking to intermodal.

“We’re going beyond providing meaningful



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Sun Chemical Sustainability Report.

data that will help meet customer goals,” said Gary Andrzejewski, corporate vice-president of environmental affairs. “We are showing concrete examples of things our suppliers are doing to help Sun Chemical meet and improve upon its eco-efficiency goals. It is our goal to both improve our processes and manufacture products that help our customers better meet their environmental goals. We can only do that by ensuring our suppliers are also doing their part to contribute to sustainable practices.”

“Our sustainability policy pushes us as a company to improve the eco-efficiency of our processes and products,” added Michel Vanhems, sustainability leader. “These data-driven sustainability reports have played a key role in helping our customers achieve many of their eco-efficiency goals and we’re committed to do everything we can to operate in a manner that is sustainable and ethical in the best interests of our employees, stakeholders and business relationships.”

The Sun Chemical sustainability report is available to customers and can be requested online at

[www.sunchemical.com/sustainability](http://www.sunchemical.com/sustainability).

## People

### GreenMantra Technologies Appoints Executives

SGreenMantra Technologies (Brantford, ON) has made three executive appointments. The company, which uses a proprietary catalytic system and patented process to transform recycled

plastics into waxes, greases, lubricants and other specialty chemicals, has named Kousay Said president and CEO.

Ryan L’Abbe has been named vice-president, operations, and Domenic Di Mondo has been promoted to technical director.

Said joins GreenMantra from Sirrus, Inc., a

manufacturer of high-performance monomers, where he served as chief commercial officer. He previously was an independent advisor to private equity firms and companies in the chemicals, oil and gas, renewable energy, building materials and telecom industries, before which he served 18 years as a senior executive at Dow Chemical Co.

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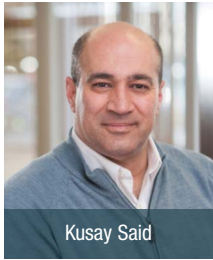
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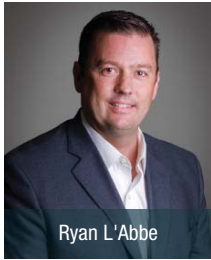
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Kusay Said



Ryan L'Abbe



Domenic Di Mondo

L'Abbe was vice-president and general manager of the Blue Mountain Plastics Division of Ice River Springs Water Co., and as a member of the company's executive committee. He has an extensive background in the beverage, recycling and automotive sectors, and previously served in management roles at Labatt Breweries and Ford Motor Co.

Di Mondo has been with GreenMantra since its formation in 2010, serving as research and development manager and overseeing the scale-up of the company's proprietary catalytic technology from the lab to the company's pilot facility and on through commercialization.

The company's first-generation products include custom wax formulations and drop-in replacement waxes used in the production of roofing shin-

gles, rubber, coatings, asphalt, and plastic color masterbatch, adhesives, inks and other products.

Unlike traditional waxes produced from crude oil, natural gas or coal, the company's feedstock of recycled plastics and its proprietary manufacturing process enables it to cost-effectively produce high quality, high value waxes and other specialty materials. This spring, it is completing construction of a new, state-of-the-art modular manufacturing plant in Brantford.

### Prism Powder Coatings Co-founder Dies

Yogesh Patel, who co-founded Prism Powder Coatings (Concord, ON) in 1990, died in early April. The company was begun by him, Livio Agnoletto and Alex Ashour, to supply a range of powder coatings and specialty finishes.

In 2002, Prism opened a US plant in Brunswick, OH.

### Dow Researcher Wins ACS Award

Erin Vogel, PhD, a researcher with Dow Chemical Co., has won the American Coatings Award for the most outstanding technical presentation at the 2016 American Coatings Conference. Her technical paper details the development of new alkyd chemistry offerings to help solve the challenge of developing environmentally-friendly alkyd-based paints and coatings that resist corrosion, adhere well and remain glossy. Vogel, who is a research scientist for industrial coatings at Dow Coating Materials accepted the award from the American Coatings Association (ACA) and partner Vincentz Network during the conference's plenary session.

"It is such an honor to gain industry recognition for our work in advancing the performance and sustainability of paints and coatings," said Vogel. "Our goal is to close the performance gap between reliable solvent-borne alkyd coatings that can emit hazardous chemicals and environmentally-friendly waterborne versions. Only 10 percent of the overall alkyd coatings market is currently waterborne, so we're confident that the availability of these new offerings will help encourage a market shift toward using alkyd coatings with improved environmental profiles."

Dow's proprietary process mechanically disperses alkyds into water to develop stable waterborne alkyd dispersions. These dispersions can be formulated into ultra-low VOC alkyd coatings that can match or exceed the performance of solvent-borne formulations and display excellent gloss, adhesion and corrosion resistance properties.

### ACA Names New Officers

The American Coatings Association has elected two new officers to its board of directors. Charles W. Shaver chairman and CEO of Axalta Coating Systems will serve as ACA chairman, and Charles E. Bennett, chairman of Randolph Products, Inc. and vice-chairman of Dixie Chemical Co., will serve as ACA vice-chairman & treasurer.

Shaver has spent over 35 years in the global petrochemical, oil, and gas industry. From 2004 to 2011, prior to leading Axalta, he was CEO and president of the TPC Group. Shaver also served as vice-president and general manager for General Chemical, from 2001 through 2004 and as a vice-president and general manager for Arch Chemicals from 1999 through 2001. He began his career with the Dow Chemical Company serving in a series of operational, engineering and business positions from 1980 through 1996.

Similarly, Bennett has had a career devoted to the industry, beginning in 1979 with a position at Guardsman Products. He held various positions at Guardsman, and was CEO and president upon his departure in 1996, when



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the company was sold to Lily Industries. At that time, he founded Polymer Products, Inc., a company that manufactured coatings resins. Two years later, he sold the company and served as Cook Composites and Polymers' CEO until 2008. He was Dixie Chemicals' CEO from 2009 to 2015. He has been an equity partner involved in various management roles at Randolph Products since 2001.

"We're delighted to have Charlie and Chuck as our new officers," said ACA president Andy Doyle. "Both gentlemen are extraordinary and experienced leaders committed to the growth and well-being of the paint and coatings industry."

Both Shaver and Bennett will serve two-year terms on ACA's board, ending in April 2018.

### MacDermid Enthone Names Global OEM Manager

Steve Wilde has been named global OEM manager by MacDermid Enthone. He has over 20 years of experience working in the automotive and heavy truck industries promoting the products of Tier I critical fastener manufacturers and Tier II surface treatment applicators to Ford, FCA, a variety of heavy truck manufacturers and their Tier II suppliers.

He will be based at the company offices in New Hudson, MI.

### American Plating Power Appoints Parts Manager

American Plating Power, LLC has named Scott Brown as spare parts manager. He has over 25 years' experience in parts sales and marketing. In addition to a professional background with management positions at NAPA and John Deere, he has specialized in parts sales and support for various other industries.

He will be responsible for the development and management of the newly created American Plating Power spare parts business. This will include the launch of a new online store offering a comprehensive supply of spare parts for all power supplies. His goal is to generate sales, assist customers in obtaining critical spare parts for their power supplies and to provide a one-stop source for new and existing customers.

"With welcoming Scott on as our spare parts manager, he will be able to expose American Plating Power to a vast new market," said Waasy Boddison, president. "Scott's experience and reputation in our industry will be key to our success as we expand the Spare Parts and Service divisions of our company."

### Shin-Etsu Expands Sales Team

Shin-Etsu Silicones of America, Inc. recently expanded its silanes sales team with the addition of new regional sales managers. Elizabeth Roetger, who spent the past eight years with Evonik Corp., is handling the North American sales territory east of the Mississippi River. Bill Severns, who has a background in thermoplastics and has been with Shin-Etsu for four years, handles the sales territory to the west.

### Aluminum Council Names Board

The results of the annual election of officers and directors of the Aluminum Extruders Council were announced at the 67th Annual Meeting & Leadership Conference last month in San Antonio, TX. Matt McMahon, president of Pries Enterprises in Independence, IA, was elected to serve a one-year term as chairman of the Aluminum Extruders Council.

"I am honored and excited to be elected to serve as Chairman of the Aluminum Extruders Council," said McMahon. "I look forward to continuing the important work of the Council with programs that develop business excellence, expand the extrusion industry and defend the trade tariffs against unfair competition."

R. Scott Kelley, president and CEO of Service Center Metals in Prince George, VA, was elected to serve as vice-chairman. Mike Flynn, president of APEL Extrusions Ltd in Calgary, AB, Canada, was elected to the at-large position on the executive committee. Martin Bidwell, President and CEO of Magnode Corp. in Trenton, OH, was chosen immediate past chairman, and Rick Merluzzi, CEO of Pennex Aluminum in Wellsville, PA, was chosen past chairman. As announced previously, Jeff Henderson was elected to the non-voting position as president of the Council.

In addition, four people were elected as extruder directors: Brook Massey, president of MI Metals in Oldsmar, FL; Brook Hamilton, president of Bonnell Aluminum in Newnan, GA; and Jason Weber, director of business development – energy & construction products for Sapa Extrusions in Rosemont, IL.

Elected as producer director was Matthew Castle, director metal sales – the Americas, for Alcoa Primary Metals in Knoxville, TN. Re-elected to three-year terms as extruder directors were Shayne Seever, vice-president of Sierra Aluminum in Riverside, CA, and Charles McEvey, executive vice-president of Western Extrusions Corp. in Dallas, TX.

The Aluminum Extruders Council (AEC), established in 1950, is an international association dedicated to advancing the effective use of aluminum extrusion in North America.



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# More Stringent Chemicals Management Regulations Possible

In March, CPCA made a formal submission to the House of Commons Environment and Sustainable Development Committee, which is undertaking a review of CEPA, 1999. One of the three areas under review is chemicals management, and the Chemicals Management Plan (CMP) in particular. CPCA also participates in an Industry Coordinating Group (ICG) of 25 associations working on a formal position to present to the Committee. The Committee will be holding hearings in the coming months to get the views of industry, academia and non-governmental organizations interested in strengthening chemical regulations. It said it would examine more general comments from stakeholders in the coming weeks and submit a final report to Parliament within a year.

Other potential concerns include the fear of refocusing the current structure of CMP on the hazard vs. risk principle (i.e. consideration of natural vs. anthropogenic sources) and existing control efficiency of substances; further actions against substances currently managed well or to cover susceptible populations; mandating the government to identify “alternatives” within the current risk assessment and risk management approach under CMP over the past 10 years; revisiting national standards vs. guidelines for water/wastes/air pollutants; and re-reviewing existing/new substances and legacy substances.

The newly elected, activist government is moving forward on issues that directly impact industry based on environmental considerations, such as slowing down the approval of pipelines to move resources from Alberta to tidewater on the East Coast; introducing initiatives on GHG emissions and climate change; and now targeting chemicals management. Industry will have to be

mindful of when and if the Parliamentary review might impact the paint and coatings industry in Canada and how it could evolve in the coming months.

CPCA and other industry associations need to present a clear understanding of CMP to the Committee in terms of what does or does not work. They must also ensure the Committee fully understands the critical elements before making recommendations for amendments to CEPA that will likely be more stringent under the current government or lead to the outright banning of more substances. Industry must provide the necessary data that will allow government to make informed decisions; failure to do so could result in more bans and tougher regulations for industry in future. It remains to be seen what actions will be taken in the final report and if they will lead to regulatory amendments to CEPA.

## International Organizations Will Impact Coatings Industry in Future

The Chemicals in Products (CiP) Program is a non-binding initiative led by the United Nations Environment Programme (UNEP) under the Strategic Approach to International Chemicals Management. This 2020 initiative aims at broadly ensuring that chemicals are produced and used in ways that minimize their impact on the environment and health. The main objective is to increase the availability and access to product information of chemicals within the supply chain (i.e. to disclose key information and ensure due diligence) and urge companies to proactively move beyond a legally restricted substances list and manage their uses of substances more wisely and with precaution.

Its mandate is to enable industry, governments, ENGOs and others to

address the risks posed by chemicals in products by facilitating access to relevant information. The CiP Program and its guidance materials were released at the Fourth Session of the International Conference on Chemicals Management (ICCM4) in Geneva last fall. UNEP was invited to coordinate, promote and facilitate its implementation via a steering group. This program will be a living document within a voluntary framework for the consideration of key stakeholders including industry. The secretariat will build and maintain a website for this program that will include participants' information, documents and results. It will publish materials to further explain the program's objectives and implementation.

The Government of Canada is now considering how it can best support the implementation of the CiP programme by industry and is welcoming suggestions and/or recommendations. Companies can participate but must send a letter of request to UNEP to indicate agreement and notify them of any voluntary actions to be undertaken supporting their objectives. This global platform offers opportunities for visibility and recognition for industry and it can stimulate possible partnerships and collaboration among participants.

Rest assured this initiative will impact all those doing business in the chemicals sector. The question is, by how much and when? CPCA continues to track these developments closely in concert with like-minded coatings associations via the International Paint and Printing Ink Council (IPPIC) and apprise its industry members as to when intervention may be required.

## More Consistency for Key Elements of EPR Programs in Canada

In June 2015, provincial environment





ministers of the Canadian Council of Ministers on the Environment (CCME) directed officials to work with stakeholders to achieve greater consistency on key elements of extended producer responsibility (EPR) programs, such as product lists for EPR materials, definitions, program monitoring and reporting metrics, and auditing protocols. CPCA has been actively involved with enhancing the overall consistency of key elements of EPR and product stewardship programs across Canada. It has also provided input to the working group that is developing recommendations for CCME through a series of sector-based discussions. Paint manufacturers operating in Canada pay 100 per cent of the costs for post-consumer paint programs, and future decisions on the items noted above will impact those costs.

#### Regulatory Cooperation Council Moves Forward on Workplace Chemicals

The Regulatory Cooperation Council (RCC) Workplace Chemicals' Work Plan was recently released. RCC outlined the work that U.S. OSHA and Health Canada will seek to achieve during the review period. Their goal is to finalize a work plan to be released at the end of June 2016. ACA and CPCA made a joint submission, highlighting our ongoing concerns with the final implementation of the Globally Harmonized System (GHS), especially with respect to concentration ranges and Confidential Business Information. CPCA provided further guidance to members on what is required for implementation and compliance with the current GHS as it proceeds through the transition period. The first of five phases of the GHS guidance document, the technical review, has been completed. CPCA also provided further clarification to its members based

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on information that was reviewed by Health Canada. The next phases, which relate to readability, legal aspects, translation and a final review by OSHA, will be completed in the coming months.

### **CPCA Participates in IPPIC Annual Meeting in Tokyo**

Member country representatives from the International Paint and Printing Ink Council (IPPIC) discussed the following from a long list of topics:

- IARC: IPPIC's publication of the childhood leukemia review paper (in relation to IARC) will be completed soon.
- UNECE Sub-committee Work on TDG/GHS: IPPIC continues to closely monitor the UNECE Subcommittee on Transport of Dangerous Goods (TDG) and the GHS.
- Emissions from paint and coatings: Coatings associations from the United States, Europe and Japan worked extensively to evaluate emissions from paint and coatings products. Their efforts generated data that can be used in official communications regarding "green product standards" and enable the development of modelling programs and other initiatives that have mitigated regulatory impacts. In the case of Japan, it allowed industry to provide certified products that are important to end users.
- LCA/PCR Program update in the paint industry: IPPIC members received an update on the Life Cycle Assessment and Product Category Rule (PCR), as well as the European Commission's Product Environmental Footprint (PEF) Pilot Program and other related national efforts in the EU. All countries shared their own experiences or program status with LCA and/or PCR.

- Microbeads: IPPIC representatives discussed the status of plastic microbeads pollution in various regions around the globe.
- Nano: IPPIC's Nanotechnology Standard efforts, under the leadership of the coatings association from France, who monitors and reacts to emerging International ISO standards on nanotechnology being developed under TC 229. This year's work plan was discussed in detail.
- Chemicals management: Updates were given on REACH, CMP, TSCA reform and Europe's Paint Stewardship Program.
- ISO Standards: IPPIC discussed potential engagement for development of additional standards for the future.

### **Ontario's Proposed Resource Recovery and Circular Economy Act Could Add Costs**

CPCA's recommendations related to the proposed waste recycling Act focus on appropriate amendments that will provide stability and a level playing field to ensure industry stays competitive; ensure regulatory clarity that will lead to full compliance; achieve better outcomes on waste reduction and resource recovery; and not drive up the costs for the consumer since they ultimately pay the full costs based on the requirements imposed by this legislation. CPCA filed its comments in February and some of the key areas of concern were as follows:

- Industry is concerned with the overly prescriptive nature of the proposed legislation, which will likely lead to greater acrimony, higher costs and poorer outcomes.
- The MHSW program is already a full EPR program with 100 per cent of costs paid by industry.

- The mandate of the Oversight Authority is supposed to be less than that of the current agency, but it will inevitably grow beyond the proposed mandate due to the many objectives that can be arbitrarily imposed by the Ministry of Environment and Climate Change (MOECC).
- Integrity related to governance of the proposed Oversight Authority is a concern given the make-up of the board and the extra duties that can be imposed by MOECC related to reviews, which can lead to conflict, extensive arbitration, litigation and increased costs.
- Well-intentioned, policy statements are de facto regulations that are arbitrarily decided on by the Minister and the Cabinet without regard for the impact on stakeholders and thus may be in contravention of the government's Regulatory Policy (July 2014).

- Appropriate amendments are needed to "reduce the administrative burden and lower the cost of doing business" as per the Ontario Government's "Business Growth Initiative" (Fall 2015) and ensure full alignment with the Burden Reduction Reporting Act (2014).
- Centralized collection under program operators, known as collectives, support efficiencies in waste reduction and resource recovery, while helping reduce the environmental footprint, especially with respect to GHG emissions.

A legislative standing committee is now reviewing the proposed legislation and considering possible amendments before tabling them in the Ontario Legislature for final ratification and passing into law. This is expected before the Legislature recesses in June for the summer break.



## Substance-based Performance Measurement May Help Industry

The Stakeholder Advisory Council (SAC) presented and discussed the Substance-based Risk Management Performance Measurement (SBPM) methodology last November. The performance measurement is conducted on a risk instrument basis (e.g., regulations, Pollution Prevention (P2) Notices). SBPM is the government's approach to determine effectiveness of risk management actions based on a prioritization process, developed based on case studies (i.e. Bisphenol A). Industry input on the criteria to prioritize candidate substances for SBPM and communication of SBPM results is now required. A learning curve regarding SBPM exists, and more results will inform whether ongoing efforts are enough such as: if environmental, human health and risk management objectives have been achieved and no additional action is required; if trends are in the right direction but continued risk management is

needed to meet objectives; and if risk management efforts should be redirected or re-prioritized.

Schedule 1 List of Toxic Substances lists 132 substances and groups of substances. Not all substances will need an SBPM. Applying weighted criteria to Schedule 1 substances will help identify if all candidate substances represent high, moderate or low priorities for SBPM. CPCA is working via its various committees to ensure we provide the required input into this process, as it may help reduce the demand for information from industry or at least expedite the process.

It is instructive to see the Proposed Prioritization Methodology with each substance being scored according to eight criteria: 1) Hazard to human health/the environment; 2) Availability of new information; 3) Level of impact of RM Actions i.e. prohibition or international agreement regarding the substance; 4) Complexity of risk management; 5) Availability of indicator

data; 6) Social, technological, economic (STE) and political considerations; 7) Anthropogenic sources of exposure and potential for additional risk management; and 8) Time elapsed since addition to CEPA Schedule 1.

A ranking of 1, 2 or 3 will be assigned for each criterion, with 1 representing the lowest score and 3 the highest. For example, under 5), if a substance is already part of CHMS, it will receive a score of 3, if it is part of the NPRI or other reporting programs, it will receive a 2, and if no compliance data is available, it will receive a 1. Total SBPM scores will be compiled according to a weighting approach, and each substance will then be categorized as High, Medium or Low priority.

CPCA is seeking feedback on these criteria from its members in terms of how they may impact them and the substances used in their respective businesses. ■

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# Pushing the Envelope in **Metal Coatings**

Many companies make a good living supplying or servicing a particular industry. But when that industry faces a major downturn, as the oil and gas business has in western Canada for the last year, the company has to find new outlets.

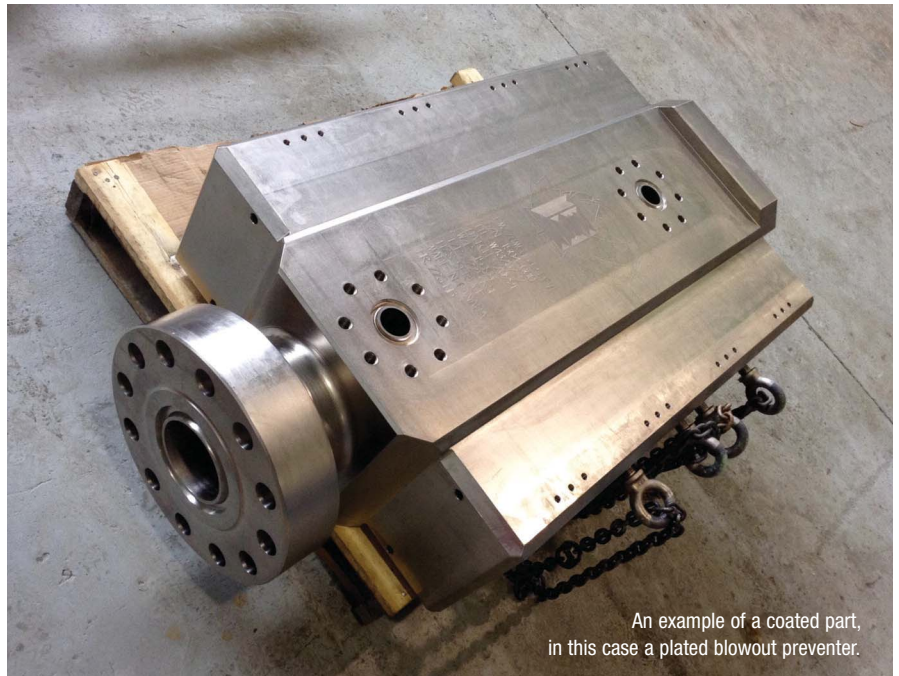
Harber Coatings Inc. is an operation with proprietary technology for electroless nickel coating (ENC). Founded in 2002, it invested heavily in developing its trademarked InnoGUARD process in the early part of the decade, working in conjunction with the National Research Council of Canada. Company president Ken Wang, who has a master's degree in chemical engineering, as well as a bachelor's in mechanical engineering, grasped that the standard processes for ENC could be improved, and he founded the firm to realize his vision.

"Our InnoGUARD ENC extends the life of critical metal items by over 20 times," he says, "even when parts and tools are mechanically impacted, exposed to sour [acidic] service or placed in highly corrosive environments. We are the only company in North America to offer a lifetime no flaking or peeling warranty on a coating."

Electroless nickel coating significantly reduces the replacement cost of parts and tools and downtime for customers, he points out. His company strives to address environmental concerns such as unnecessary discarded parts and a safer work environment.

"Being eco-friendly by eliminating air toxicity and reducing chemical waste disposal," he notes, "while being able to maintain low pricing, is crucial in this industry and especially in this year's economy."

The company's 20,000 sq ft Calgary plant today has 45-ft tanks that Wang states are the largest in North America.



An example of a coated part, in this case a plated blowout preventer.



Coated spools are a typical oil-patch item that Harber coats.



“With the larger equipment in our newly expanded facility, we have quadrupled our productivity to meet rising demands of customers requiring larger parts and tools to be coated,” he says. “Working more efficiently has also enabled us to reduce pricing by 15 percent and offer additional volume discounts. Due to the sharp decline in the oil and gas sector this will prove to be a huge benefit for companies dealing with very tight budgets over the next few years.”

Another component to Wang’s expansion plan is to use the Calgary facility as a staff training centre and open locations globally. However, the oil-patch slowdown has had its effect on supplier companies like Harber, so that it has been hunting for new niches in oil and gas as well as opportunities elsewhere.

“We’ve had to reach out to food processing, mining, and other industries like wastewater management,” says business development director Vicky Alberto. “Anywhere people are trying to make metal parts last longer is a potential market for us.”

While oil and gas is suffering with the current global low prices, the sector is adapting rather than simply closing down. An example of this that has benefitted Harber Coating is sucker rods, which go into the casings used to pump out oil.

“They were never really coated before, because they are not very expensive to make – around \$200 each,” Alberto says. “But if you replace them every two to six months, and it costs \$125 to coat that \$200 rod, it means you have no downtime for two years, so it makes sense to do this under severe wear and corrosion conditions.”

And where previously ENC and other coatings were applied to components used deep in the well, now drillers are finding economies by coating components used nearer the surface. Large storage vessels, for example, can be corroded by brackish wastewater or chemicals used for fracking.

Raw steel in such circumstances

typically lasts six to eight months but with ENC, 10 years of life is possible. Alberto says that some customers have even modified the size of large vessels to fit Harber’s 45-ft tanks so they can be coated.

Another area that’s opened up is valves. Some, Alberto says, are relative-

ly expensive, so the logic of coating for longer life is not in dispute.

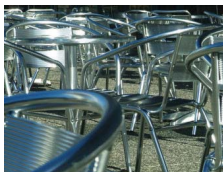
InnoGUARD is a phosphorus-nickel alloy deposited on a metal substrate, created by a chemical reaction of nickel, phosphorus and other proprietary ingredients in a bath/dip process. The thickness is controlled by the length of time

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## plating and anodizing: **CASE STUDY**



Harber president Ken Wang by one of the plating tanks.



The company's 45-ft tank is, Wang believes, the largest of its type in North America.

the substrate is left in the bath solution.

Post treatments allow the coating to achieve a Vickers Hardness up to 900 Vickers, or greater than 68 Rc. And it can withstand temperatures up to 880 deg C.

Coatings are possible in thicknesses varying from 0.0005 in. to 0.004 in., depending on application needs and specifications. Additionally, an impact or dent will not cause the coating to peel or flake.

InnoGUARD 300, the basic formula, creates coatings up to 50 Rc. It has 11 to 15 percent phosphorus content, and the ductility is 1.3 percent elongation.

InnoGUARD 300H is a heat-treated, hardened formula that achieves a crystalline structure in the coating. Compared with hard-chrome, Alberto says, it has superior wear and much higher corrosion resistance. The company recommends it for high wear-abrasion applications.

And InnoGUARD 300M was developed for marine and offshore applications, as well as other harsh environments. It achieves a Vickers hardness of 850 HV, or greater than 68 Rc.

However, the company has not simply declared its products proven and its development done. In addition to these standard technologies, Wang has commissioned research on three related yet significantly advanced methods of coating.

The HarberAL metallic-ceramic liner process is now in the customer testing phase. With the same hardness and chemical inertia as aluminum oxide, and the same strength and tenacity as steel, it offers very high mechanical impact resistance, and can be used in an extremely abrasive environment where there are strong mechanical impacts, such as the appearance of larger size rocks.

"It's primarily for pipelines, which suffer from erosion, not corrosion," Alberto says. "Sand can be found in the crude oil, and that erodes the interior of the pipe. And a pipeline won't fit a 45-ft tank, so we needed an alternative process."

A second process that is largely viable at this point is Ultrasonic Electric Thermal Spray (U ETS). This uses a supersonic arc metal spray of stainless steel, Inconel, Hastelloy or a ceramic, made molten in an electro-melting process.

Because it uses extra dual inert gas protection, it produces no oxides. Its speed is reportedly much greater than that of conventional flame spray or high-velocity oxygen fuel processes.

"We can use this to coat large vessels," Alberto says. "We hope to launch this next year, since there's no real point in launching a new product during a downturn."

The third process, Laser Assisted Nano Fusion, is still under development. This can replace traditional plasma overlays, which, because of their high heat, can damage substrates. Anticipated applications include drill pipe hard bends, drill bits, and oil sand bucket teeth.

"Drill-bits get chewed up so much that you need something with hardness and longevity," Alberto says. "This is explicitly a coating for situations where erosion, not corrosion, is a problem."

While some aspects of metal coating and the markets it serves are constant across the board, Harber Coatings has

shown how the technology can be stretched to encompass new areas for growth. And while it wants to stay with its core business of oil and gas, it's shown how a company can remain viable when markets don't behave the way suppliers hope they will. ■

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# Waste Not, Want Not

Controlling water outflows is an ongoing challenge in the plating industry. Since there is no way for a wastewater treatment system to be a positive contributor to revenue, the system adopted needs to be chosen with great attention to its longevity and reliability.

“The design objectives continue to maximize the scrubber efficiency which equates to reduced disposal costs and minimize spray booth downtime required for cleaning and maintenance,” says Brad Sparkman, president of Innovative Finishing Solutions. It all boils down to becoming more cost effective and environmentally friendly.”

His company’s primary system is the Palin Paint Sludge Removal System. Sparkman says it offers the most effective and efficient paint sludge removal process that is compatible with all suspension and/or floatation chemical processes.



Photo courtesy: www.huffingtonpost.com

“These cost effective solutions work with a central system design or a modular stand alone water wash booth,” he says. “With the Palin design the objective is to maximize the booth’s scrubber efficiency, which in turn will reduce the end user’s disposal costs and minimize the spray booth downtime for cleaning and maintenance.

“The efficiency of a Palin consolidator can be over 80 percent, which allows a side-stream treatment from either individual booth(s) or from a central collection sludge pit. By using this technology, the Palin system provides clean, recirculated water, meaning the booth operates more efficiently and is easier to maintain.”

There have been significant improvements with chemical management programs at many of the existing plants, he notes. Chemical technology has come a long way and users seem to be taking a closer look at operating their systems more efficiently than in the past. They are becoming progressively more aware of their energy, chemical and labor costs.


“They are taking more care, and focusing on optimizing their day-to-day sludge pit or sludge operations,” he says, “as they are now recognizing the efficiencies of properly managing this part of their operation.”

There are various methods used for purifying wastewater, either for re-use in the plant or for safe disposal. Different factors come into the decision on which to use, including local regulations, the plant size and configuration, and previously installed manufacturing systems.

A. Brite Co. offers a substantial selection of such methods. These include use of bentonite clay, universal batch treatment systems and universal flow-through systems.

The Auto Filter, the company says, is a compact, dual tank integrated system capable of processing up to 4,500 gallons per day. It can recover contaminant-free water up to 95 percent of the original volume, without the use of chemicals.

The company’s high-capacity UF systems employ parallel channel, high-flow spiral membrane technology to separate



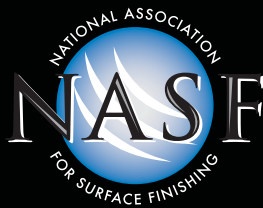
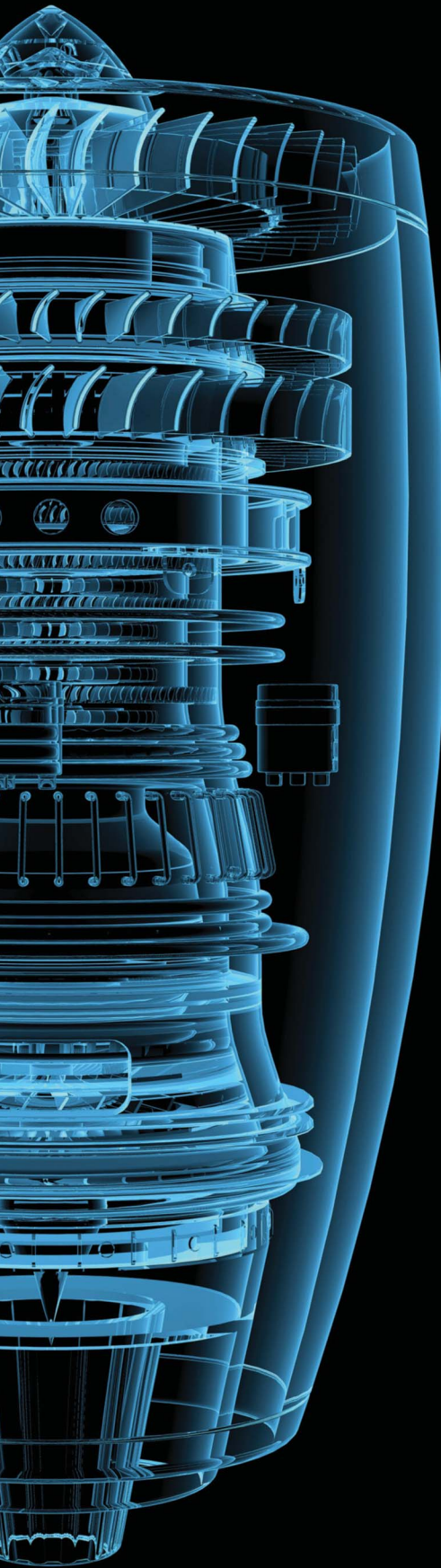
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“The efficiency of a Palin consolidator can be over 80 percent, which allows a side-stream treatment from either individual booth(s) or from a central collection sludge pit.”

water from suspended solids and emulsified oils. With process rates available up to 6000 gallons per day, these membrane systems are designed for continuous applications in the harshest environments.

Bentonite clay is a well-tried approach. Wastewater treatment systems employing it can remove emulsified oils, metals and suspended solids. Bentonite works across a wide pH range, so that most applications require no pH adjustment.

All reactions necessary for chemical treatment are packaged in the company's Cleartreat blend, which means only one tank is necessary to perform all treatment functions. This reduces the amount of floor space, less pumps, valves and power required, as well as cutting the chances of mechanical failure, and simplifying operations.

Other systems in the company's line-up include DUF water re-use technologies, which use the dissolved air flotation method, and ultra-filtration technology for final clean-up of effluent. Hybrid systems such as this can treat waste streams normally considered too difficult for membrane systems alone, because of high oil, grease or solids loadings.

And WRT flow-through systems can handle industrial wastewater at anywhere between five and 400 gallons per minute. In such equipment, PLC-based control panels prevent untreated discharge of industrial and plating shop wastes such as chromium or cyanide.

These systems with integrated clarifiers can replace much larger, conventional multi-tank installations. Units come pre-assembled for ease of installation.

These systems with integrated clarifiers can replace much larger, conventional multi-tank installations. Units come pre-assembled for ease of installation.

A number of suppliers in the field also offer reverse osmosis filtration systems. The semi-permeable membranes used in this can remove small particulates down to the molecular level.

The water is distilled multiple times to remove any mineral content, to the point it will create no deposits in machinery, nor cause any corrosion, when re-used. The actual rate of water recovery depends, of course, on membrane pore size, operating pressures and temperatures, and membrane surface areas. ■



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## Fabtech Canada Crowds the Halls

The third biennial Fabtech Canada trade show was held to great success at the Toronto Congress Centre in March. Over 300 exhibitors took space at the event, between them showcasing an estimated 1,500 new products or services. The event began with a presentation by retired Canadian Forces General David Fraser, chief operating officer of INKAS Armored Vehicle Manufacturing. On-site technical seminars were held throughout the show.

For those of you who missed the show – and those who went – here’s a selection of photos of exhibitors and their booths. The next Fabtech Canada will be held from March 20 through 22, 2018. The venue will be the Toronto Congress Centre once more, close to Pearson International Airport.



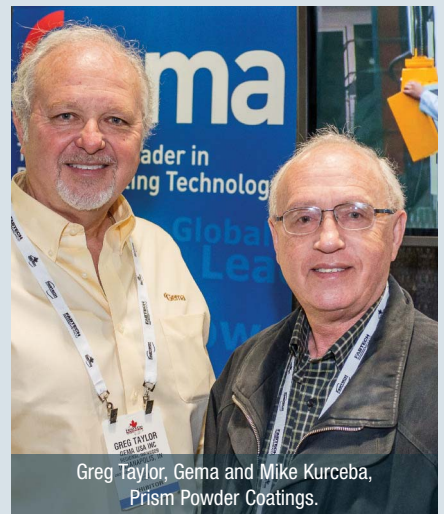
Michel Bresolin, Diego Bertolo, ST Rajan, Paul Kelly and Mike Baglione. Exel Kremlin Sames.



Jason Jiang and Fanny Lu, Prona Tools.



Ian Townshend-Carter, Paul Hamilton and Sergio Plaja, Caps'n Plugs.



Greg Taylor, Gema and Mike Kurceba, Prism Powder Coatings.



# Fabtech Canada



Mark Stanton and James Stanton, Cooper Plating, Ralph Dalfonso and Jeff Stoner, Fischer Technology.



Tim Corley, DMC and Sylvain Martin, Smart Metal Technology.



Steve Ditta and Amber Hope, Blastech Corp.



Ron Cairo, Stoner Group.

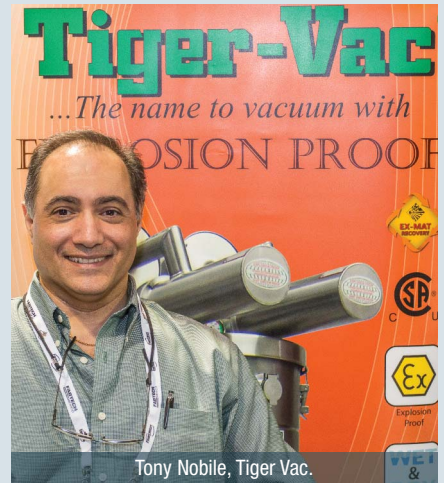


Pat Doherty; Graco, Richard Cote and Larry Schaefer; Howard Marten Fluid, Mike Vangstad; Graco, Brad Sparkman; Innovative Finishing, Peter Struwing and Mark Voskeritchian; Graco,





Euriah Vold, Global Finishing Systems, Charles Makad and Callum Gilchrist, Paintline Products.



Tony Nobile, Tiger Vac.



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Tim Shaughnessy and Dan Montoney, Rapid Cure.



Jeff Battiston and Robert Edwards, Olympic Coaters.



Dave Mattingly, Latem Industries.



Gary Prokop and Dirck Sillery, Spraying Systems.



Ed Baldassi, Brock Baldassi, and Rob Parsons, Decora Powder Coatings.



Mike Floyd, Uni-Spray.



Colin Hammacott and Mike Bertrand, Hedson Technologies.



Chris Kane and Richard Goelz, Eisenmann.



Stephane Girardin and Alexandre Descoteaux, International Surface Technologies.



Michael and Sylvia Teskey, Colourific Powder Coatings.



Lizabeth Bjarnarson and Mike Gallagher, TTX Thermo-Tron-X.





Pat D'Alessandro, Sandie Orlando and Andre Kuhnel, Bex Spray Nozzles.



Ernie and Anna De Angelis, Supreme Galvanizing.

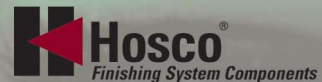


Karla Cass, Pneu-Mech Systems, Peter Lamont, Ajax Finishing Systems, and Jerry Trostle, Pneu-Mech.



Ed Nichols and Bill Gardiner, IHI Ionbond.

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# Automatic **Spray Guns**



Automated Graco spray unit

Automating spray-painting is a steadily expanding technology, or set of technologies. It will always be the preserve of large companies more than smaller ones, but the demarcation line continues to shift as costs come down, and automated systems become more flexible.

To understand how the market is evolving, we need to look at it from two aspects, according to S. T. Rajan, vice-president of Exel North America Inc.

“Small and medium-sized companies are constantly looking to towards automation to keep their costs down and increase profits. If the job is very repeatable there is a strong likelihood of someone jumping towards automation. This is more relevant in kitchen manufacturers who are doing flat pieces, but the same applies in parts of the metal industry where the jobs are repeatable, and the sizes manageable.”

Exel, he says has a long list of small and medium sized companies that have jumped to automation and been very successful. These companies have seen a thorough return on investment when embarking on these projects, since automation helps in reducing labor and rejects, saves on material and gives consistent finish quality.

“However,” Rajan cautions, “in every industry it is important to look at space requirements before jumping into automation. We have seen industries jump towards automation without paying attention to space requirements, which ultimately affects material movements and brings down man-

ufacturing efficiencies.”

The second aspect, or second segment of industry, is operations that are already automated, and want to upgrade their equipment to get more out of automation. In automotive plants, from Tier One through Tier Three, Rajan notes, “companies who were using air spray electrostatic equipment have gone towards bell technology on the wet side, increasing transfer efficiencies and drastically reducing paint consumption. This translates into more profits.

“On the powder side, for flat objects, we have the highly efficient Ino-Bell technology, which replaces auto powder guns and gives you much better finish and less over-spray, and hence reduces on collection and on the load on cyclones and filters. Places where customers are manually mixing two component paints we have two component machines of various kinds to fit customer needs. This equipment will help in production times and wastage of chemicals, and it considerably reduces rejects.”

Financing, he says, is also more readily available today. There are government incentives to automate in various places, and banks and leasing companies are also playing a very important role in funding companies looking towards automation.

Exel’s latest contribution in the field of automated spray painting is its automatic Airmix spray guns (AVX). These have a series of new tips which can atomize high solids and water-

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The proven reliability and quality of SATA spray guns is also available as pneumatically controlled precision spray guns for automated paint jobs. Versions with low overspray or for robotic systems are available in material saving HVLP or RP technology.

Automatic spray guns are also available as stainless steel version to make them suitable for waterborne paints.

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SATAjet 3000 spray unit.

based coatings with excellent results.

"We introduced a new range of two-component mixing systems giving the customer a choice and helping him make the right decisions," Rajan says. "The systems also have optional packages with air/solvent chop, advanced reporting systems (data link-network systems), gun flush systems, E-Stat safety kit, and fluid management kits. The advanced range of our two component systems called the Experts can handle many colors, catalysts, and can also be a three-component system mixing either solvent or water."

As future developments, he says, the company wants to look at entry level two component mixing system for small operations.

"This really would help them in their semi-automatic process," he points out. "We also want to work more closely with integrators, system builders providing smaller automation process for small and medium sized manufacturers."

"There are a number very specific qualities that have lead our customers to Walther Pilot products," says the company's marketing manager, Jorge Flores. "The top quality build of our automatic spray guns is the main attribute that keeps our customers extremely satisfied. With many companies running three shifts, durability is now a primary requirement as less repair time equates to direct monetary savings.

"This is the area in which our products stand out. With properly matched needle and nozzle sizes, customers reporting run cycles of several months between repairs is not uncommon; all while running continually for three shifts. The high build quality also leads to easier and more efficient operation, two other main attributes for which our customers are continually looking." Other features Walther customers find, she says, include less overspray, better transfer efficiency, and more even and controllable spray patterns. Companies want to save time and money, and the high quality build of our products allow them to do so.

"The Pilot WA 700 is our most fully featured and versatile spray gun," she says. "Its stainless steel front body and wetted parts allow you to successfully spray virtually any material. Its extremely robust German design and build allows you to realize exceptional performance with very little downtime due to repairs."

This unit is available in conventional, HVLP, HVLP-plus, AR (Abrasive Resistant), and Adhesive (solvent or water based) versions. The option of internal or external control for fan and atomizing air also ensures that, no matter how the spray system is setup, there is a version of the WA 700 available to tackle the job. Various nozzle sizes and extensions are also available.

Eurotech's SATAjet 3000 A system is another example of the continuing development in automation. According to

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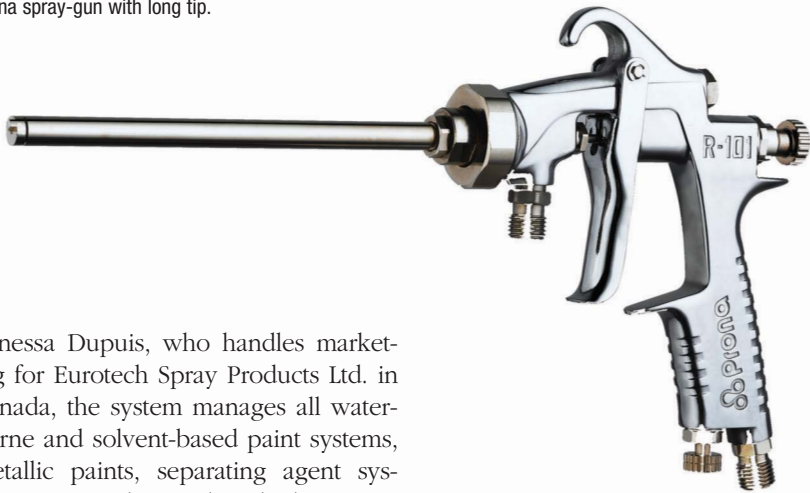
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Prona spray-gun with long tip.



Vanessa Dupuis, who handles marketing for Eurotech Spray Products Ltd. in Canada, the system manages all waterborne and solvent-based paint systems, metallic paints, separating agent systems on metal, wood and plastic surfaces, surfaces and edges in general, complex components.

Manual adjustment of the round and flat fan as well as the material amount allows for absolute precision of paint delivery, while the internally controlled pre/post-air does not require an external control valve. Users, Dupuis says,

can choose from from HVLP or VOC-compliant RP technology, with or without lifetime prolonging surface refinement or carbide material passages for abrasive materials.

Stainless steel and material circulation versions are also available, along with optional quick change adapters for

Delbiss' AGMD Pro automated unit.



high production shops. The SATAjet 3000 A can retrofit to lifting equipment, linear units, large surface robots, rotary axis robots, chain-driven robots and robotic spray systems.

For less demanding operations, Eurotech offers the SATAjet 1000 A. This is available in optional stainless steel and material circulation versions as well as with quick-change adapters.

Mike Vangstad, manager, global prod-



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uct and channel marketing, with the industrial products division of Graco Inc., says his company is seeing a really big increase in demand for automation. Graco has not traditionally been a major player in the automated end of the field, but it is paying attention to the trend.

“Our ProM controller is suited to auto-

mated applications,” he says. “It came out at the start of the year. And our PD2K has been around for three years, but we keep on adding features to it.

Automation, he adds, is one of Graco’s key strategic initiative areas. The company is seeing eight percent growth rate per year.

“It used to be just for automotive, but our focus goes beyond that,” he says. “We’re looking at some of the Tier Ones and Twos, in part because robot costs are going down.”

In 2005, the average cost of an industrial robot was just over \$180,000. Today, it costs from \$103,000 to \$133,000 to set up a full-size robot

2005 average cost: \$182,000. Today, \$103,000 and \$133,000 to set up a full-size robot.

“It’s about finish quality, consistency and throughput,” Vangstad says. “We sometimes say spraying is 3-D - dull, dirty and dangerous. But you reduce material usage through not spraying into the air, and you get less VOC emissions.”

Robots draw very little power, he notes, and they can also reduce airflow through the booth. They help reduce both floor space and bottlenecks.

“The energy offset from using them,” he points out, “is huge.”

Prona Tools Inc. has a new model for automatic spray painting, offering high capacity and high pressure. Buyers can choose between a copper or stainless steel nozzle, says president Jason Jiang.

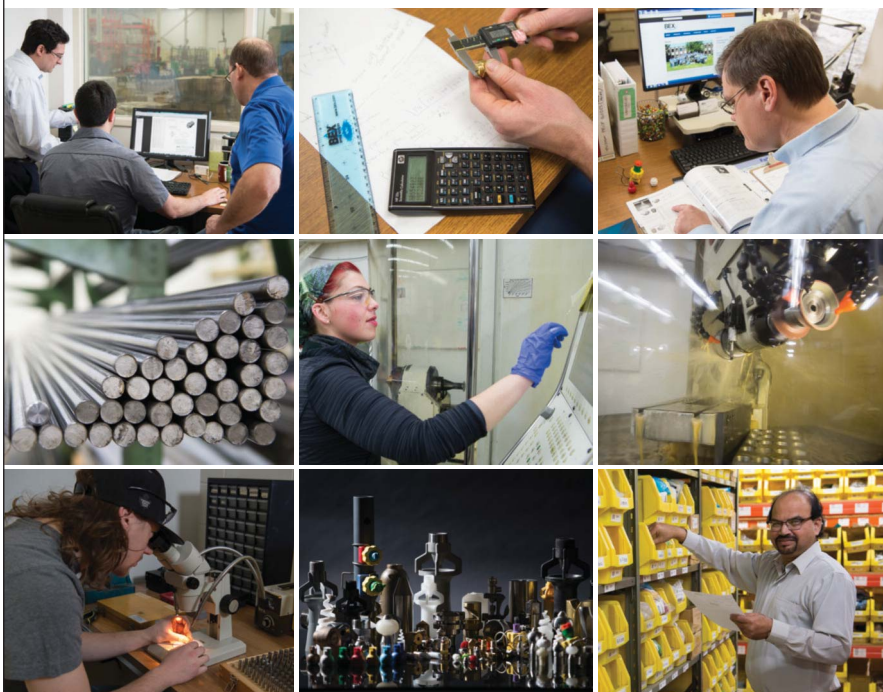
“Stainless steel is for water-based paints, and it also offers chemical resistance,” he says. “It’s also needed for food industry products, though the food industry also usually needs a Teflon coating for sealing, not metal. Copper is for solvent-based paint.”

Prona also offers a long-tip for spraying inside pipes and other difficult-to-reach parts. This is available with different tip angles, and with high or regular pressure.

“In woodworking, door and window frames might need this type of spray gun to match the necessary movement of the part on the line,” Jiang says.

In sum, automation in spray painting is becoming much less difficult to implement, and much less expensive. It can never replace manual spraying entirely, simply from the nature of the industry. But it’s definitely going to continue expanding its presence in the market. ■

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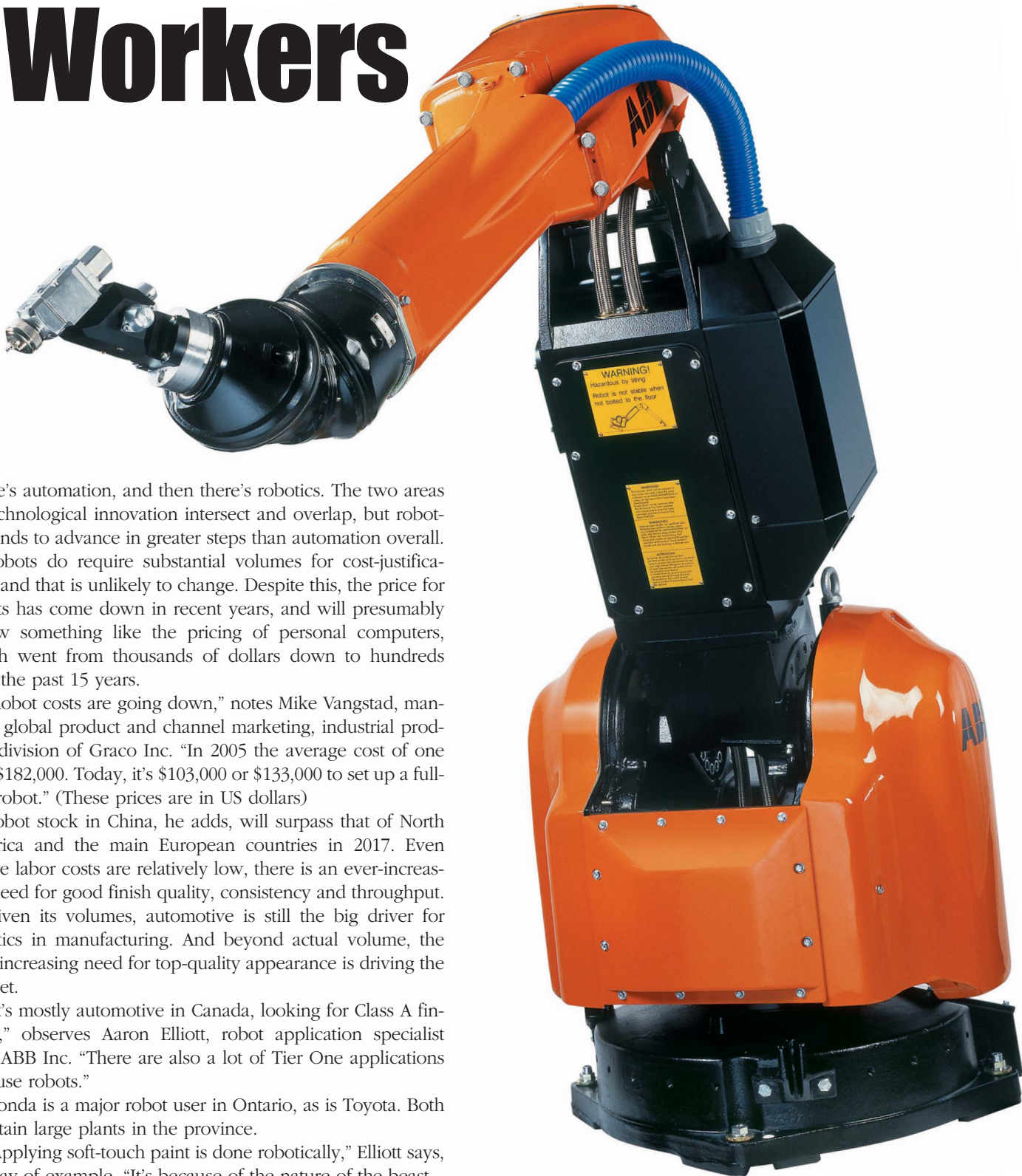
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# Uncomplaining Workers



There's automation, and then there's robotics. The two areas of technological innovation intersect and overlap, but robotics tends to advance in greater steps than automation overall.

Robots do require substantial volumes for cost-justification, and that is unlikely to change. Despite this, the price for robots has come down in recent years, and will presumably follow something like the pricing of personal computers, which went from thousands of dollars down to hundreds over the past 15 years.

"Robot costs are going down," notes Mike Vangstad, manager, global product and channel marketing, industrial products division of Graco Inc. "In 2005 the average cost of one was \$182,000. Today, it's \$103,000 or \$133,000 to set up a full-size robot." (These prices are in US dollars)

Robot stock in China, he adds, will surpass that of North America and the main European countries in 2017. Even where labor costs are relatively low, there is an ever-increasing need for good finish quality, consistency and throughput.

Given its volumes, automotive is still the big driver for robotics in manufacturing. And beyond actual volume, the ever-increasing need for top-quality appearance is driving the market.

"It's mostly automotive in Canada, looking for Class A finishes," observes Aaron Elliott, robot application specialist with ABB Inc. "There are also a lot of Tier One applications that use robots."

Honda is a major robot user in Ontario, as is Toyota. Both maintain large plants in the province.

"Applying soft-touch paint is done robotically," Elliott says, by way of example. "It's because of the nature of the beast –



when you are working with such coatings, they're not very conducive to being done by hand."

At the same time, robots are becoming easier to use, and the notion of robotics as strictly a high-end application business is fading. The programming, in particular, is becoming easier to do.

"You can designate the surface you want to paint, and software we can supply will create the coat for you," Elliott says.

"We call this SRP, which stands for simplified robot programming. It's designed specifically for paint.

"You mimic your paint line, and put a couple of sensors in the room. You run your hand over the surface as if you were using a paint gun, and the system duplicate exactly what you did, as a program for the robot."

ABB currently offers four specific paint manipulators. It also has an explosion-proof version of its welding robot, with 170 degrees of motion.

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Fanuc's 250 iA robot.



ABB 5400, a recent addition to the line-up for automotive parts finishing

"It could paint itself," Elliott jokes.

As with other robot manufacturers, ABB has shifted a number of its designs to hollow wrists. This means any cables are embedded in the 'wrist' of the robot, keeping them free from any possible snag-points as the robot arm moves.

Despite following the traditional emphasis on automotive, the company has branched out into unexpected sec-



Godin Guitars, seeking perfect gloss, uses robots for finishing instruments like this one.

tors. Montreal-based Godin Guitars, which has three facilities in Quebec as well as one in New Hampshire, has used ABB units for paint finishing. The company makes a broad range of guitars, both acoustic and electric.

“Godin has a high throughput, with a very consistent product,” Elliott says. “We’ve also done jobs for stove manufacturers, and for Bain Ultra in Quebec, which makes high-end fiberglass tubs. A robot applies the chopped fiberglass to the tubs.”

A relatively recent innovation is combining robots with spray bells, which are used in place of guns to give better paint distribution. ABB’s Japanese operations produce these bells.

“I would like to see robots moving more and more into the smaller shops,” Elliott says. “We’ve saturated the larger Tiers and the automotive OEMs. So, we need to move into the Tier 2 Tier 3 shops after this.”

Kuka Robotics Corp., represented in this country by Kuka Robotics Canada Ltd., is another major supplier of robots, which made much of its reputation in automotive plants. The company is exploring niches that require high-quality finishes.

“We do some prepping of surfaces,” says Yarek Niedbala, regional sales manager. “Caskets is one application, and we also use our robots for sanding caskets. Our robots can handle staining and varnishing, too.”

Fanuc is another robot producer with a growing investment in the coatings industry. Its P-250iA series is designed for efficient process equipment integration with features such as a hollow wrist, an option for two motors on the outer arm for gear pumps, an outer arm designed for easy integration of paint application equipment and multiple hose routing options.

The P-250iA is available in both the P-250iA /15TM full-size arm and mid-size arm P-250iA /10STM to fit the robot to the application. The unit can also be mounted for elevated, in-booth and clean wall floor style rails.

A plastic arm allows for paint equipment to be mounted on a non-grounded arm. Options for either an in-arm gear pump or mounting space for an in-arm flow meter and color valves provide fluid delivery flexibility with minimized color change time and material waste

The robot’s ability to ‘flip-over’ axes two and three provides a large work envelope and maximum flexibility for painting.

The related Paint Mate 200iA Series is for small parts painting. It has a small footprint, and is offered as an alternative to multiple fixed guns. The unit is designed for use in hazardous environments.

The robot is a compact, electric servo-driven paint unit based on Fanuc’s LR Mate series. Its reported envelopes, speed, and dexterity are useful both for regular coatings, and hazardous duty applications. ■

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# Designing Your **Paint Booth**



A paint booth is a paint booth, you might think. But there are always fine points to look at when upgrading what you have, or designing a new paint facility.

It's almost impossible to speak of a 'typical' paint booth. All designs involve shrouds or rigid partitions, along with a means of moving air through the booth so as to eliminate build-up. Beyond that, every design is individual, made for a particular industry and a particular application within it.

"A booth is all about filtration and air movement," observes Lizabeth Bjarnason, who handles marketing for Therma-Tron-X Inc. "Anyone can make a booth, but those two things are what make a good one."

TTX sells both dry filter booths and water-wash booths. On the dry filter booth side, Gallagher says, there is some new technology coming into the market that pulls the paint away better.

Liquid paint, of course, is still 80 percent of all paint sold anywhere, and most booths need to be designed for this.

"A lot of booths are for batches," Bjarnason notes. "We build a lot of flow-through booths because we deal with customers who need flow-through. That means they need good power and a free conveyor instead of a continuous monorail."

Adds her colleague, sales manager Mike Gallagher, "We still do a lot of monorails, but another alternative is SST, which stands for Square Transfer Indexing Systems. An SST is good for loads up to 20 racks per hour."

He cautions that a paint booth is not something a company wants to be replacing every few years. That seems self-evident, but in some cases, customers look for durability in what they buy, but don't think about future increases in capacity that they will have to manage.

"You have to size for the eventual volume, not for today alone," he points out. "Some customers know that, and some don't."

Mild steel used to be a popular mate-

rial for the walls of a booth. In recent times, stainless steel has become a growingly popular option.

"Mild steel was good for a 10 to 20-year lifespan," he says. "Now, people are looking for more life than that, so it makes sense to spend a little more money to get more life for the booth. Plus, you will need less maintenance with stainless steel than with mild steel."

Changes in both the industry and in the regulators that oversee it are producing some shifts. Euriah Vold, territory sales manager with Global Finishing Solutions, LLC, notes that while wet paint is still the reigning champion, the shift to waterborne paints requires some changes in booth design. Powder coatings, which continue to grow in influence, produce others.

"Regulations on emissions keep getting more stringent," he says. "That influences use of waterborne coatings."

Where there might be a shift in technology is requirements for air movement. The notion of moving from a



A part ready to be sprayed in a Crossing Air Spray booth.

standard, regulated air movement of 100 ft per minute to 50 ft per minute is in the wind, Vold notes, even if there is no sure indication of changes, or of a timeline for them.

“Volatility of particulates is always a key consideration to look at,” he says. “For almost all manufacturing 100 ft is standard with the sidedraft or downdraft set at 50 ft per minute. We have to wait and see whether this will have to change.”

If it does, some companies will simply need to upgrade their blowing equipment. Others might have to consider a complete new booth.

Regardless of such potential changes, any firm looking at a new booth needs to decide the style that suits its requirements. Pacific Spray Booths Ltd., for example, offers open face, crossflow or reverse flow, semi-downdraft, side-downdraft and full downdraft options. The company’s primary sales area is west of Saskatchewan.

Pacific it specializes in truck and industrial booths. The standard truck booth size is 16x16 ft, though other styles are offered.

The company’s range goes from basic open-face booths to double-wall insulated booths with multiple cycles for large production shops. It also produces blast booths that can, if requested recycle blast media.

A recent player to join the business is Crossing Air Spray Booth Canada, which with its sister company Zhongda Spray Booth operates from facilities in Concord, ON. The company makes the

full range of booth styles and sizes, as well as a wide selection of heating and filtration systems.

Its open face spray booths featured 18-gauge galvanized steel or satin coat finishes. Overhead fluorescent light fixtures are standard, and the company offers a complete range of filter media.

“Booths is a very mature business,” Gallagher says. “When you come down to it, as with any other equipment, it’s a matter of making it as efficient as possible for the best ROI. You just need to ask for help from people who know how to deliver that.” ■

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## Canada Enters Final Phase of **Chemicals Management Plan**

BY GARY LEROUX

The potential for changes in regulations impacting industry creates a level of uncertainty across the entire supply chain for all: raw material suppliers, distributors, manufacturers and end users. No one escapes the prospect of mandated changes in regulations or the regulatory development process that may or may not lead to banning of a substance or a new regulation. Industry must mobilize to ensure any changes to how chemicals of concern are treated are facts-based and/or appropriate to the level of harm they may cause to human health or the environment. Industry has proven it is responsible in this regard and will remain so.

This situation has never been more pronounced than in the case of Canada with the federal government now moving into the third and final phase of the Chemicals Management Plan (CMP). The federally mandated assessment or evaluation of the remaining chemicals of concern used by industry sectors of every stripe commenced in May of 2016. Paint and coatings is one of the top sectors implicated in the assessment of chemicals under CMP, which was the case from the very beginning. As such CPCA has been fully engaged for the past nine years in phases one and two

of CMP. It will continue to be completely immersed in data gathering and related consultations with federal officials over the next five years with respect to chemicals to be evaluated under CMP-3.

### Where it All Began

In 2006, Canada spearheaded the development of a toxic substance management initiative to protect human health and the environment, introducing the multi-phase CMP. Canada then implemented a systematic, science-based process for the 'categorization' and 'screening assessment' of roughly 23,000 legacy substances that formed the initial Domestic Substances List (DSL), and the rapid screening of lower-risk chemical substances. The federal government committed more than \$1-billion to the plan and industry earmarked substantial funds to comply with the requirements under the Canadian Environmental Protection Act (CEPA) with respect to CMP, which included such things as formal submissions, mandatory surveys, countless consultations and one-on-one discussions with officials.

Phase 1 of the CMP evaluated 195 substances and identified 80 risk management instruments with 60 implemented and 20 still at the proposal stage. Only two bans emerged in the

first phase: Bisphenol A in baby bottles along with the implementation of a Pollution Prevention Plan (PPP) for industrial effluents. Consideration for another ban relates to the use of TCEP in home products such as polyurethane foam in furniture; electronic products; adhesives; non-apparel textiles; upholstery; carpets; rubber and plastics; and paints and varnishes. Phase 2 identified 525 substances for risk assessment and risk management, with six risk management analyses for substances meeting specific criteria under CEPA. In total, 158 substances were assessed.

As part of the chemicals management process over the past 10 years, the paint and coatings industry succeeded in engaging in a collaborative work effort with the federal government, academia, industry and international authorities in support of a robust information gathering and risk assessment process for 2,270 substances. The role of industry was critical in securing a positive risk management outcome related to the chemicals used in the sector, which in some cases included voluntary codes of practice, in lieu of regulations. A huge part of that success for the paint and coatings industry was CPCA's creation of a paint and coatings sectoral working group consisting of industry representatives from CPCA



member companies and federal officials meeting regularly. In fact, it has been so beneficial that the federal government is now planning to create similar working groups for other sectors in CMP-3.

Canada's approach on chemicals management has been widely regarded in international circles and other countries are considering following a similar process including Brazil, Australia, and the United States.

### **In the Home Stretch**

The final phase of CMP-3 focuses on the evaluation of the remaining 1,550 substances, representing 37 per cent of the total slated for assessment in 2006. For a period extending from April 2016 to April 2021, Environment and Climate Change Canada and Health Canada will analyze 1,550 substances on the DSL (645 organics, 370 inorganics, 320 polymers, 220 petroleum). This represents roughly 310 substances per year, almost one substance per working day. The paint and coatings sector, including adhesives and sealants, is again in the top tier of sectors implicated in these assessments with approximately 35 per cent of the substances used in paint and coatings. This final group of substances includes what Canadian government officials have described as "a mixed bag with a wide range of substance complexity and poor data points."

It will be a challenge for industry to provide the data required by government to make informed decisions on risk management measures. But industry must take up the challenge and get busy to ensure proper evaluations are done and substances are not banned or inappropriately regulated based on poor data. The lion's share of that data rests within industry.

CMP-3 chemicals to be assessed will have a direct impact on the products used in the industry whether they are architectural, industrial or automotive. One must consider the fact that regulatory decisions taken as a result of the evaluation or assessment of substances used in paint and coatings formulations are key determinants of product per-

formance, availability of supply and price. Adjustments in any one or all of these could negatively impact industry and quickly lead to the following adverse outcomes:

- trade disruptions and difficulties in the management of stocks for North American trade;
- elimination of products with high penetration in the Canadian marketplace;
- reformulation required for products with substitutes that are more costly and not always available in Canada;
- extensive testing, re-labelling and special precautions with respect to transportation of goods and other supply chain issues;
- unique Canadian restrictions of use and/or misalignment with U.S. and international regulatory measures for substances; and
- the potential of creating a negative image for the industry with respect to substances used in coatings formulations, including in cases where these products may not even be targeted for specific risk control measures.

### **Stronger Together**

No company wants these negative impacts to become a reality and alter their business plans. This will be the case if certain substances are restricted or banned. CPCA's work has saved companies time and money, as well as provided a unified effort that is essential to gather all the available and relevant data for robust, evidenced-based assessments. This has and will continue to provide a significant return on investment for its members, as more is always better than less with respect to evidenced-based data for proper chemical assessment. In turn, this enables government officials to make sound decisions on the chemicals of concern, especially with respect to the best way forward in managing risks. Fortunately, the vast majority of decisions have been positive. Where risk management measures were imposed, they have been

proportional to the risk. It has been a win-win situation for both industry and government, and we hope to have the same outcome during CMP-3.

Similar outcomes in CMP-3 are not assured, however, as the Parliamentary Standing Committee on Environment and Sustainable Development has just begun a review of CEPA, which drives the CMP process. One of the objectives of that review relates to chemicals management. The committee will be looking at what amendments might be necessary to strengthen the assessment of chemicals and what changes may be required in the form of amendments to the Act. No one can be sure what the final result will be. Once the committee issues its formal report at the end of 2016, likely with proposed amendments, it will become clear how chemicals management will be handled in future. Non-governmental organizations are making the case that these chemical assessments must be based on the inherent hazard, as opposed to risk management. They will be pressing for the higher benchmark for chemical assessment from the perspective of the precautionary principle and that chemicals can also be potential endocrine disruptors. These were not accepted as part of CEPA in the past and thus not critical factors in the current chemicals management approach.

Chemical assessment decisions to date have been based on sound science, which has proven to be effective in ensuring few chemicals are banned. More importantly, it has assured better risk management of chemicals of concern in order to protect human health and the environment. It has also ensured a level playing field for industry generally. CPCA and other industry stakeholders look forward to the continuance of this widely recognized and effective approach on chemicals management. ■

*Gary LeRoux is President and CEO of CPCA.*

# Mixing and Dispersion

Proper mixing of paint is almost the whole art of the business. If pigments and additives are ground to spec, and the formula is a proven one, the way it's mixed is usually the make-or-break point for a good product.

Radia Products, known until this past January as Red Devil Equipment Co., has recently updated its Speed Demon I one-gallon mixer to its product line-up. Bob Brockman, director of sales, says a key feature is a different timer.

"It used to be set at two minutes and three minutes," he says. "We have found we could get full color incorporation within 90 seconds, so we have switched our timer on the Speed Demon I."

The improved unit, presented at the recent American Coatings Show in Indianapolis, was to be launched in May.

The company is retaining the Red Devil name for some of its products. Notably, its two-arm mixer, which has been in the market for decades, will continue to be sold under this name.

Netzsch Group (Netzsch Canada Inc. in this country) recently launched its S-Jet milling system. This offers the advantages of dry-grinding with superheated steam. Through use of an air classifier integrated in the mill, the company says, finenesses down to the sub-micron range are possible.

There are reportedly significant benefits to be gained by using superheated steam as a grinding medium instead of air. The jet energy, which is considerably higher than that of air (jet speeds of up to 1200 meters per second can be achieved), increases the discrete energy input and the kinetic impact energy of the product particles is increased fourfold.

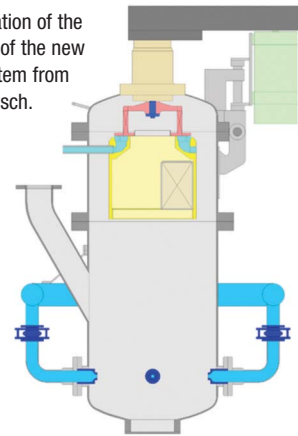
This steam-based capability is decisive in obtaining finenesses in the sub-micron range (e.g.,  $d_{50}$  0.2  $\mu\text{m}$ ). In addition to this, as steam has a considerably higher sound velocity than air, the possible peripheral flow speed within the classifier wheel also increases and with this, the acceleration forces which affect the product being classified.

Together, these factors make it possible to classify particles in a submicron range by dry-grinding. The Steam Jet Mill of the S-Jet series is available as a compact plant for grinding on a laboratory or small scale. The space required for installation is only three square meters.

Buhler Inc. offers mills for wet grinding and dispersion processes. That the company describes as its optimized process engineering and energy concept provides high power-density as well as large throughputs in relation to grinding volume.

The product range runs from the

An illustration of the workings of the new S-Jet system from Netzsch.



Centex full volume bead mill, up to the high performance Perl Mill SuperFlow for true grinding and nano-dispersion; and from the PML 2 laboratory mill to the large-scale production machine Centex T5 or SuperFlow VCR 400.

In all application ranges for wet grinding and dispersion, the company notes, the result of the entire process is dependent on the quality of the pre-treatment: in other words, the mixing and pre-dispersion of the raw materials. It offers different column mixers, dependent on application and product viscosity, including high speed dispersers for pre-dispersion, butterfly mixers for high viscosity products and twin-shaft mixers for combined mixing and pre-dispersing.

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Hero Products Group offers a range of mixers, including the S2110M, a one-gallon vortex mixer featuring a no-slip gear drive and a small footprint. Its mixing motion allows it to blend paints from latex to stucco.

Its fully enclosed motors are spill-proof, and the lifetime-sealed bearings are maintenance free. Fiber-reinforced synchronous belts never stretch, and synthe-

tic gears resist wear and paint spills. Also, a Stack Rack allows two S2110M units to be placed on the same footprint.

Hero's A100 Archimede Light sequential model is an automatic colorant dispenser. It features the company's recently launched Progressive Cavity Pump, which keeps maintenance costs low.

The company says an entire dispense



A Radia Speed Demon paint mixing system.

circuit can be replaced without tools or special training in under five minutes. Additionally, the unit does not suffer calibration drift, and its Draw Back feature allows it to reverse the flow of colorant through the pump, meaning there is no issue of colorants drying in the nozzles. It has a low refill height, and a space-saving, compact design.

Conn and Co., LLC, is now offering an ultra-high molecular weight polyethylene (UHMWPE) mixing blade that provides a combination of shear/dispersion and pumping action, for material turnover. A low-shear version without teeth is also available, and the blades can be bought in either antistatic or natural versions.

The polymeric blades, the company says, give much longer life than typical metal blades, and when leading edges are worn, the blade can be turned over to start like a new one. They are supplied in polyurethane, nylon, Teflon, polypropylene and other materials, and are offered with mounting holes and mounting hubs, as required.

Conn's range of mixing and blending equipment offers a wide range of functional options. It has

as air drive, electric drive, and AC or DC power, with electrical specifications to suit operating conditions.

Single or variable speed are available, with horsepower to suit service conditions and dimensional design to suit batch size or existing tank. Power lift is available as well as the patented Conn Rigid Shaft Coupler, which provides a means for quickly removing stirrer shaft assembly.

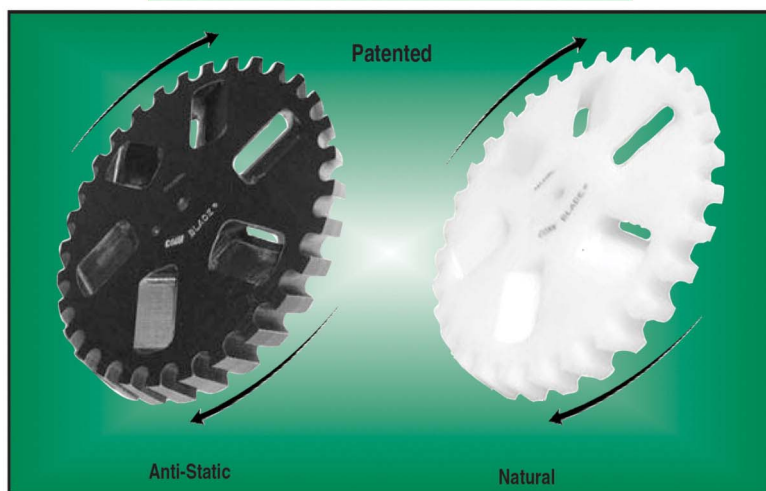
The range available on the market today is broad, and covers any conceivable mixing application. Mixing will always be an art, but the science to help perform is not hard to find. ■

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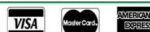
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3



## American Coatings Show Breaks Records

Organizers of the recent biennial American Coatings Show, held in mid-April at the Indiana Convention Center in Indianapolis, say the fifth edition of the ACS was the most successful to date. The event attracted 559 exhibiting companies, using over 130,000 sq ft of space, and 9,100 registered visitors.



“ACS 2016 exhibitors have indicated very positive experiences regarding new leads, and a record number of industry professionals are attending this year,” said Cheryl Matthews, vice-president, events and expositions, for the American Coatings Association.

“We remain committed to our goal of bringing the industry a top-notch platform for business exchange, technological innovation and professional development. Our goal is to continuously increase the quality of the experience for both exhibitors and attendees.”

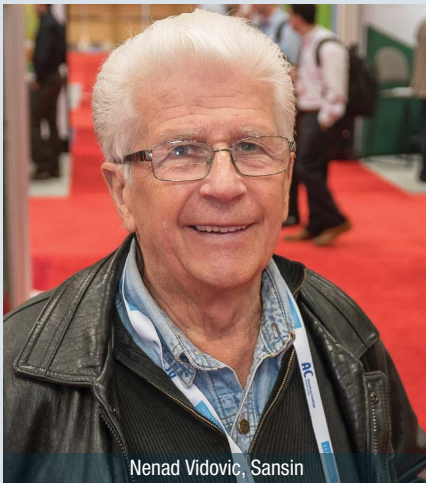
The choice of Indianapolis, was, various exhibitors agreed, a popular one.

“We were very pleased with the decision to have the show in Indianapolis,” said Gary Strauss, president of Micro Powders. “It’s an easy city to get around and close to major coatings markets. The event seemed to be well organized, especially registration and securing badges.”

“The American Coatings Show was excellent, and Indianapolis was a fantastic location,” added Lauren Hultz, communications manager, North America, Clariant Corp. “Our team was pleased with the traffic on the show floor.”

The show returns to Indianapolis in 2018.

Here you see a selection of photos of some of the people at the show.



Nenad Vidovic, Sansin



Ian Goodwin, Soheila Pourhashemi, Hamid Moshari and Roger Learn, Arya Chem.



Jim Sally, Brenntag.



Serge Crochetiere, Sunamco.



Gary Leroux, CPCA.



# ACS Show



Steve Nuyten, LV Loma and Patrick Saab, Stepan.



Veronica Cabeza, Kamlaish Mudhar and Tom Matthews, Univar.



Cathy Currie, Home Hardware Paint, Ian Goodwin, Arya Chem and isa McLaughlin, Home Hardware Paint.



Matt Docherty and Terry Newton, Hero.



Ian Cangard and Roula Hanna, Kronos and Jijo George, Polyrho.



Audrey Gagnon, Francois Corriveau, Jean-Luc Bouldreault, Systems Adex.



Taylor Schicchitano, Shenton King and Chris Fesenmeyer, King.



Kourtney Carter, Ron Anger and Jim Hachtmann, Buckman.





Ed Thompson, LV Lomas.



Noel Shahnazarian; Robert Jacksteit, Norspec Chemicals, Bob Tinsley, Cloverdale Paint, John MacLean and Joseph Lancar, Norspec.



Veronique Landry, FP Innovations/Laval University.



Venu Srinivas and Afzal Azan, Allied Cans.



Dennis Houseweart and Aivars Freidenfelds, ElektroPhysik.



Colin Darcel, Maratek Environmental.



Tim Vogel, Cloverdale Paint and Dana Field, Harcros.

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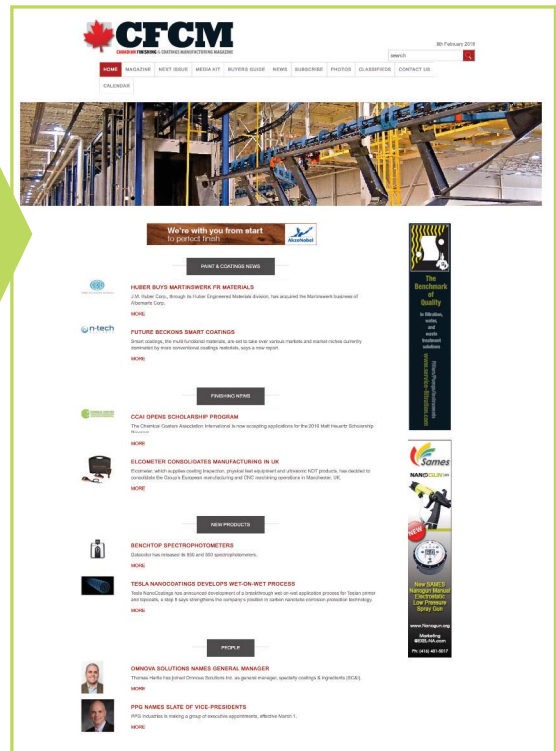
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# ACS Show



Basilio Nucara and Tony Malson LV Lomas.



Steve Holland, OPC, Marc Lemieux, Marchem and Fred Veghelyi.



Johanne Sawaya and Martin Groen 'nt Woud, Dempsey Corp.



Steve Miranda, Randy Smith, Netzsch, Murray Steeves, Manutrol and Kevin Kirkwood, Netzsch.



Scott Harvey, Chemroy and Lisa Gentile, BASF.



David O'Keefe, Bent Jensen and Randy Winslow, Langguth.



Rod and Braden Paterson, A.S. Paterson.



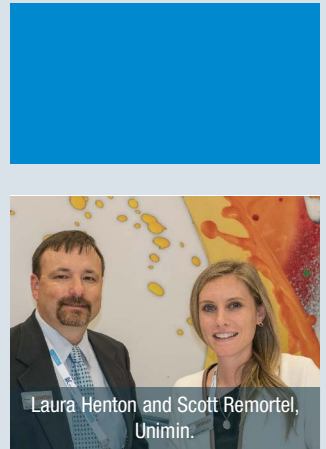
Ian Maxwell DeFelsko, Doug Corrigan Chemquest, and Terry LaRue, DeFelsko.



David Addes, Protech Chemicals.



Joseph Asaj, Appalachian Flooring.



Laura Henton and Scott Remotel, Unimin.



Sun Chemical's Benda-Lutz Compal WS, a new range of highly concentrated, VOC-free aluminum preparations for coatings and inks.



# Metallic Pigments Continue to **Shine**

The hottest area in pigment formulations right now is metals. New metal oxide and metallic pigments are emerging constantly, and the properties they confer keep increasing.

In addition to this, finer quality carbon blacks are still an area where there is plenty of developing happening. Examples of all these were presented at the recent American Coatings Show in Indianapolis, and there are more announcements expected throughout the year.

Shepherd Color Co. used the show to launch its new Yellow 10C 151, NT (for niobium, tin and pyrochlore) and Orange RTZ (for rutile tin zinc), 10C 341.

"The yellow is a brand new color," said marketing specialist Lori Huber, "offered as high-performing lead-chromate replacement. "We think it's the most important pigment chemistry since DPP red. We're certain no other yellow and match this."

The new colors are for any thin film, high-performance exterior applications where a double color is needed. The primary selling features are opacity, chromaticity and durability.

Lanxess is touting its new Ningbo Process for iron oxides, named for the location in China where the first facility using this manufacturing method has started production recently.

"This process will reach more highly saturated yellow-shade red iron oxide pigments. Furthermore, for the first time, red pigment in previously unattainable color spaces can be produced," said Peter Baldus, vice-president, inorganic pigments group, North America. "In addition, we were able to do this in an environmentally friendly process. Compared to the traditional Penniman process, it ensures the full purification of all nitrogen oxides emitted and a reduced energy demand by up to 80 percent."

Where China was formerly seen as lax in enforcing environmental regulations, recently it has become much stricter in policing toxic emissions. The country is, Baldus says, the largest producer of iron oxides in the world, so it has had to change its approach. Many older pigment facilities have been shut down as a result.

Lanxess invested in new capacities to meet growing global demand for its Bayferrox pigments. Through exact control of the growth of the 'seeds' of iron oxide crystals, paying attention to pressure, temperature, time and other processing factors, the Ningbo process can produce brighter pigments that show a significantly higher red value than conventional pigments.

Most of the output of the so-called Bayferrox New Red pigments range is going into paint and other coatings, and a smaller amount is destined for the plastics industry. Commercial grade samples will be available in the third quarter of this year.

Sun Chemical Performance Pigments has launched Benda-Lutz Compal WS, a new range of highly concentrated, VOC-free aluminum preparations for coatings and inks. Designed for long term gassing stability in aqueous environments, Compal WS can be used in both water or solvent based systems, providing broad formulation flexibility. Each grade is offered in granular form for safe and easy handling, improved shelf stability and easy dispersion.

"In the midst of increasingly tighter environmental regulations on volatile organic compounds, our customers need pigment solutions that not only meet those regulations, but also help to develop manufacturing processes and finished goods with the highest level of workplace and transportation safety in mind," said Michael Venturini, global marketing manager, coatings, Sun Chemical. "The non-hazardous Compal WS aluminum pigment concentrates help to meet those regulations. They are designed specifically for long term stability in waterborne coatings and inks that allow for the manufacture of low to zero VOC, sustainable coatings."

The solvent-free pigments are nonflammable. Both leafing and non-leafing pigment intermediates have been developed and can be applied to both cornflake and silver dollar types to provide a wide range of optical effects including high metallic sparkle for straight silver or tinted industrial coatings.

"Metallics are very functional," Venturini added. "They offer UV resistance and visible light resistance, also."

"In decorative applications they offer a have a very high



level of brilliance. You can also run a full range of very smooth, satin finishes, up to sparkly or glittery effects. So, it's functional as well as decorative. The technology has matured to the point you can use it in every formulation, whether waterborne or solvent-based."

BASF recently launched two different quinacridone technologies. One is on the very blue end of the space, and one is on the yellow end of the space.

"They have the highest chroma on the market," noted marketing specialist Lisa Gentile. "The improved rheology is the thing. Due to poor rheology, people couldn't get the colour saturation they needed previously."

BASF also has a range of domestically produced pigments that use coated titanium dioxide, Gentile added.

"This new product is in the greenish-gold space, and we call it Lumina Royal Dragon Gold," she said. "It's an interference pigment, so it goes very well with green. It has the highest lightness and chroma on the market, so you can get to new intensities of color in that space."

BASF has also introduced a thin, silver-dollar flake used in its Paliocrom Brilliant Gold and Paliocrom Gold.

"These offer good hiding power and excellent chromacity, especially for automotive applications," Gentile said. "A high chromatic red aluminum is very hard to get, but we can offer it." Paliocrom Brilliant Red will come out in the late summer.

Among carbon blacks, Birla Carbon recently launched Raven 1185, a surface modified carbon black featuring high jetness and easy dispersion for use in industrial and architectural coatings and premium quality inks. It has been okayed for food contact and skin contact applications. "This is a finer version of our Raven 1040," noted Dr. Natalie Harris, North American technical service manager. "It's been produced with high structure to aid in faster, more complete

dispersion while its surface modification provides the desired viscosity and dispersion stability."

Orion Engineered Carbons also has new grades of carbon black. The company is using special after-treatments to increase the oxygen-containing groups on the particle surface, as in its XPB 255 grade. This grade offers very high jetness and a deep blue undertone.

Mark Dingeldein, technical market manager, says, "Our after-treatment improves the compatibility in water as well as in select formulations. It offers better compatibility with other additives in the water. An enhanced interaction with polar binders significantly improves the stabilization of the carbon black pigment."

Deep jetness is especially important in automotive finishes, where it creates look of depth to the color. This is less of a consideration in industrial grades, such as those used on appliances, where a look of depth is less significant in making a sale.

"Surface treatment is the key with all these grades," Dingeldein says. "We will put the carbon through a secondary process to increase the oxygen-containing groups. These increase compatibility. You can achieve higher pigment loads, and it improves weathering."

Christina Thomas, marketing manager for Azelis Canada's CASE division, says Cappelle, one of the firm's principals, reports growth in both organic and inorganic pigments.

"Where we see movement is replacement of old problematic inorganic pigments containing lead or cadmium. This replacement may take some time but replacement is inevitable."

Cappelle reports solid success with its Bismuth Vanadate product lines, with many new introductions over the last several years, years, some of which are unique to Cappelle.

These new products can offer customers distinct advantages in their markets with new color pallets. The company has noted that customers are demanding products with ever more stringent regulatory requirements for which we have developed specific product lines to meet these needs.

"Cappelle's focus for the last several years has been to introduce new chemistries into our product mix," Thomas says. "Some of these new pigment chemistries are unique to Cappelle. Our goal has been to add value for our customers and to concentrate on enhancing our product portfolio with more unique products and less 'me too' products."

And that, for any supplier in today's marketplace, is increasingly a necessity. ■



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# The Changing World of Waterborne Resins

Tailoring resins for waterborne coatings still has its challenges. Dispersion is an ongoing issue, as is the related separation of liquid and solids after preparation.

And most suppliers will note that stricter regulations for emissions in Europe have pushed the envelope more on that side of the Atlantic. The shift to waterborne coatings in general is legislatively, not economically, driven. But since air quality is an unending cause for concern, the changeover is going to continue happening.

“The architectural area is pretty much converted to waterborne,” says Sylvia Insogna, marketing director, Dow coating materials, North America. “However, industrial is still changing, because there aren’t the same environmental drivers. The paints don’t go into people’s houses, and also, it’s harder to get the properties in a waterborne coating.”

With industrial applications, she notes, performance requirements can be much higher.

“A boat, say – that has to deal with salt spray and corrosion. Or, consider a coating for a railcar that carries corrosive chemicals.”

“With continued regulatory pressure for VOC compliant products, the growth curve for waterborne resins will continue to increase as will the demand for greater performance in waterborne products,” adds Julie Fuell, sales director with Reichhold. “Reichhold recently introduced two alkyd latex resins into very specific niche market sectors because of the superior performance they offer.

“Clear sealers made with Beckosol AQ 522 provide a wet look appearance on porous concrete and stone and performs equal to or better than high VOC solventborne systems. Blacktop sealers made with Beckosol AQ 510 develop a

rich black color and maintain depth of color much better than traditional coal/tar or asphalt emulsion systems and offer superior durability and chemical resistance.”

Sherwin-Williams, through its Product Finishes Division, recently introduced KEM Aqua 3001, a waterborne acrylic topcoat for application on vinyl windows, trim, shutters and doors.

“When gloss and color retention are important in a heat-sensitive substrate, KEM Aqua 3001 provides an excellent solution,” says David Calabra, director of marketing. “This coating is designed to meet AAMA 613 performance requirements for organic coatings on

warping, or ‘oil canning,’ and in general, darker shades are at greater risk to experience HBU.

Added Calabra, “We know that more homeowners are expressing personal style with darker colors in windows. Our solar reflective coating allows OEMs to expand their palette to meet this demand without sacrificing performance.” The fast-drying coating can be applied direct to the substrate with one coat, or two for added performance.

Shenton King, of King Industries, says his company recently produced an extension of its Disparlon line for customers needing improved syneresis, called AQH 810.



Composite photo showing results of a comparative study of Reichhold's Beckosol product and competing blacktop sealer.

plastic profiles.”

Available in satin and semi-gloss sheens, KEM Aqua 3001 can be used on heat-sensitive vinyl building products such as windows, shutters, doors, and trim in multifamily and residential new construction projects as well as the remodel/replacement windows segment. It utilizes a proprietary solar reflective technology to reduce heat buildup (HBU) across a wide range of colors. HBU can result in deformation,

“It came out this year,” he said, “and it offers excellent control of pigment orientation.

It’s big for wood coatings, such as on kitchen cabinets; or anything that needs to be clear-coated.

“It offers better matting, and a better flopping index. But it’s an all-purpose coating, not just for wood, for people who need the high syneresis.”

Vertellus has introduced its Polycin XP EP3 as a stable and robust castor oil-



## Touch-up is extremely important for DiY, and formulating for that is more difficult to accomplish.

based emulsifiable polyol. Bradley Buehler, business director, performance materials, said that its wide level of formulating flexibility enables coating formulators to reduce development time while maintaining or improving emulsion stability and coating performance.

"This is particularly for polymer-modified mortar-based floor coatings," he said. "The coatings can be between a half-inch and 3/8-in. It can be cured as both thin films and thick films."

In addition to regular industrial flooring, it can be used with hygienic floorings, such as are needed for meat packing. The material can be steam-cleaned without cracking.

"Polycin XP EP3 permits users to easily adjust the formulation as needed for a wide range of applications, simply by adding water and other additives," he continued. "The versatility makes it well suited across a wide range of concrete coating applications requiring various levels of performance via the addition of cross-linkers, plasticizers, and additives."

Added Kwyne Pugh, senior scientist with the company, "Formulators regularly face the challenge of balancing emulsion stability and final coating performance. During testing and model formulation, Polycin XP EP3 was able to achieve both emulsion stability and coating performance in various commercial formulations."

During testing, he continued, coatings containing the polyol showed greater stability at room temperature and under multi-cycle freeze/thaw when compared to other commercial polyol emulsions. Testing also concluded that Polycin XP EP3 improves the wet-out and impact resistance of the floor coating.

"This was an effort on our part to make it easier for the customer," Buehler added. "It's intended to be a robust product, quickly prepared. This

is very much for midsized to smaller companies that don't have a lot of resources. It had to be capable of working with whatever load aggregates were available."

The material is in the first steps of commercialization, but samples are readily available.

Sun Chemical Corp. is marketing Watersol WQS-364, a new UV-curable waterborne polymer developed by its parent, DIC Corp.

Watersol WQS-364 offers storage stability, chemical resistance, and exceptional film performance on plastic surfaces and offers a breakthrough for formulators who have struggled with short storage life and low film performance of other waterborne UV polymers.

DIC's Ceranate polysiloxane-acrylic hybrid resins, which produce a stain resistant and self-cleaning coating, offer super durable exterior coatings. Ceranate waterborne resins can be ambient cured with a Watersol curing agent to produce clear or pigmented finishes with the same weather stability of fluoropolymer chemistries. In addition, Ceranate coatings are self-cleaning and highly stain resistant, suiting them to high volume, low maintenance applications ranging from outdoor living spaces to aluminum cladding and commercial buildings.

"We're also offering Compal WS," said Mike Venturini, global marketing manager, coatings. "It offers long-term stability in waterborne coatings and inks that allow for manufacture of low-VOC, sustainable coatings. It's designed for long-term gassing stability in aqueous environments.

"We're seeing a lot of requests for Compal. It has applications in automotive, but in architectural coatings also."

Dow's recent offerings include new wet hiding technology, featuring a binder chemistry it calls Evoque. It is also promoting three new rheology

modifiers, one for the do-it-yourself market, and one for contractors.

"Contractor paints have to be formulated for fast in-and-out," says Dow's Insogna, speaking of the time-is-money aspect. "DiY is more about stain resistance and re-workability. Touch-up is extremely important for DiY, and formulating for that is more difficult to accomplish. And there are also concerns homeowners have about stain removal."

And Covestro, which used to be a large part of the global Bayer organization, is exploring resins for waterborne, erasable wall-paints that can be used in place of an office whiteboard. The technology derives from anti-graffiti paint.

Andrew Stadler, head of industrial marketing – waterborne coatings, says, "People can use write on the walls in offices, and it won't upset the basic decor theme. The only thing is, you must use a dry-erase marker!"

There remain various areas for waterborne resin formulations to address. Reichhold's Buell notes, "There are still a number of needs in the market where waterborne resins have either not been developed or don't yet meet the performance criteria of the traditional solventborne resins they are attempting to replace. Some examples include a heavy duty stain blocking primer for restoring smoke and water damage, a high solids and high performance oil modified urethane for wood flooring that requires fewer application coats, and a high gloss one coat system for metal surfaces."

Various companies are working on these problems, of course. As with any other applications of chemistry, solutions will come in stages. What is clear, is that from ease of end-use and environmental benefits, waterborne coatings are definitely the materials of the future. ■

## Calendar of Industry Events

**May 3-6, 2016:** ET 16, the 11th International Aluminum Extrusion Technology Seminar & Exposition, Hyatt Regency Chicago Hotel, Chicago, IL, [www.ET16.org](http://www.ET16.org).

**May 16-18, 2016:** RadTech 2016, Hyatt Regency O'Hare - Rosemont, IL, [www.RadTech 2016](http://www.RadTech 2016).

**May 25-26 2016:** CPCA Annual Conference and AGM, the Westin Nova, Halifax, NS, [www.canpaint.com](http://www.canpaint.com).

**June 6-8, 2016:** SUR/FIN 2016, South Point Convention Center, Las Vegas, NV, [www.nasfsurfin.com](http://www.nasfsurfin.com).

**June 7, 2016:** Ontario Paint Association Golf Tournament, at Caledon Woods Golf Club, [vfinnie@vlomas.com](mailto:vfinnie@vlomas.com)

**June 14, 2016:** Dempsey Corp. 2016 Coatings Seminar, Hilton Garden Inn, Mississauga, ON, [www.dempseycorporation.com](http://www.dempseycorporation.com)

**October 4-5, 2016:** CanWeld 2016 Conference, including trade show, Edmonton Expo Centre, Edmonton AB, [www.conference.cwbgroup.org](http://www.conference.cwbgroup.org).

**October 4-6, 2016:** Aluminum Anodizers Council's 2016 Fall Conference, Hotel Omni Mont-Royal, Montreal, [www.anodizing.org](http://www.anodizing.org).

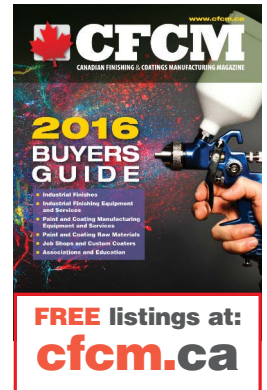
**October 31-November 2, 2017:** The Chem Show, at the Jacob Javits Center, New York, NY, [www.chemshow.com](http://www.chemshow.com)

**November 2-3, 2016:** Canada Woodworking East, Olympic Stadium, Montreal, [www.masterpromotions.ca/Previous-Events/canada-woodworking-east-2016](http://www.masterpromotions.ca/Previous-Events/canada-woodworking-east-2016)

**November 16-18, 2016:** FABTECH 2016, Las Vegas Convention Center, Las Vegas, NV, [www.fabtechexpo.com](http://www.fabtechexpo.com)

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### Mobile Drum Dumper



A new Tip-Tite Mobile Drum Dumper from Flexicon allows dust-free transfer of bulk materials from drums into process equipment and storage vessels. Ready to plug in and run, it is mounted on a mobile frame with quick-action floor jacks for stable operation anywhere in the plant.

A hydraulic cylinder raises the drum carriage which seals the drum rim against a discharge cone, after which a second hydraulic cylinder tips the carriage-hood assembly and drum, stopping at a predetermined dump angle of either 45, 60 or 90 degrees with a motion-dampening feature.

As the assembly approaches its fully-tipped position, the outlet of the discharge cone mates with a gasketed receiving-ring inlet fitted to existing process equipment or to the lid of an optional hopper with integral pneumatic, tubular cable or flexible screw conveyor, creating a dust-tight seal. Once the discharge cone is seated against the gasket, a pneumatically-actuated slide gate valve opens, allowing material to enter the receiving vessel.

The unit accommodates drums from 30 to 55 gal (114 to 208 liters) weighing up to 750 lb (340 kg) and measuring 36 to 48 in. (91 to 122 cm) in height. An optional pneumatically-actuated vibrator on the discharge cone promotes complete evacuation of non-free-flowing materials.

The drum dumper is available constructed of mild steel with durable industrial finishes, with material contact surfaces of stainless steel, or in all-stainless steel finished to food, dairy, pharmaceutical or industrial standards.

[www.flexicon.com](http://www.flexicon.com)

### Software for Instrument Readings

PosiSoft Desktop Software, available for both PC and Mac, has been completely redesigned and re-engineered for 2016. This application manages PosiTector and PosiTest instrument readings with options for downloading, viewing, printing and storing measurement data.

New highlights include the ability to generate custom, professional PDF reports, and a new Jobs feature to consolidate multiple batches into the same report. No internet connection is required.

The new customizable, PDF report generator builds reports based on user-defined report settings and batch selection. Users can enhance the report by creating cover pages, adding images and logos, and selecting the font and point size. Multiple custom layouts can be saved as templates for future use.

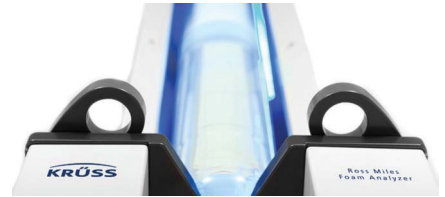


The new Jobs feature consolidates and organizes batches from one or more instruments into one common document for quicker and easier reporting. This allows inclusion of coating thickness, surface profile, environmental conditions and ultrasonic wall thickness readings into the same report.

Users can also select the level of detail to include or exclude for each product type. The new PosiSoft Desktop and all of the PosiSoft Suite of Software solutions are free to use.

[www.defelsko.com/posisoft](http://www.defelsko.com/posisoft)

### Foam Height Analyzer



The Ross Miles Foam Analyzer from Krüss is claimed to be the world's first instrument for measuring foam height electronically. It uses the ASTM D 1173 standard, which is commonly referred to for investigating the foamiability of foam-forming substances.

Measurements with the RMFA are, Krüss says, distinguished by high repeatability, large sample throughput and convenient data handling. For measurements carried out in accordance with ASTM D 1173, the foam-forming solution is presented in a high, cylindrical receiver vessel with standard dimensions.

A second quantity of the same solution is introduced from above by means of a likewise standardized reservoir. This passes through the column and forms foam as a result of the turbulence on mixing with the receiving phase. The foam height is measured as soon as the reservoir is empty and also after 60, 180 and 300 seconds.

The RMFA integrates the standardized vessels according to ASTM D 1173 in a newly developed measuring device for electronic height measurement. An LED bar and a sensor bar are fitted along the easy-to-insert intake vessel. The foam height is detected based on the difference in brightness at the foam-air boundary – a measuring method which Krüss also uses successfully in its Dynamic Foam Analyzer – DFA100.

The electronic height detection ensures considerably improved repeatability of the measurement and, with a resolution of 0.4 mm, achieves a previously unattainable precision. The initial foam height measurement does not have to be manually coordinated with the discharge of the reservoir solution. Instead, it corresponds to the electronically detected time at which the maximum foam height is registered.

[www.kruss.de](http://www.kruss.de)

## Resins for Topcoats

Lumiflon fluoroethylene vinyl ether (FEVE) resins from AGC Chemicals Americas Inc. are for industrial and architectural applications. Topcoats formulated with them are, AGC says, ultra-weatherable, offering outstanding gloss and color retention and protection from UV light, wind, rain and corrosion.

They ensure a longer life on building exteriors and facades, bridges (such as the Oklamoma bridge pictured), aircraft, automobiles, water towers and solar panels, the result is less need for repainting and a substantial decrease in lifecycle costs.



Lumiflon is a transparent fluoro resin that can be used to make both clear and pigmented coatings in more than 230 colors in high-gloss to flat finishes. In addition, they are the first solvent-soluble fluoropolymer resins for coatings that can be cured at room temperature or at elevated temperatures, making them suitable for both field and factory application.

They are available in conventional solvent grades, as well as powder form, water-based resins and solid resins for the production of low-VOC and HAPS-free environmentally friendly coatings.

[www.agcchem.com](http://www.agcchem.com)

## Compact Color Measurement Device

Datacolor has launched the Datacolor 200 spectrophotometer. This new instrument, designed especially for paint retailers and hardware stores, contains state of the art color measurement technology in a compact form factor. Combined with the new Datacolor Paint v. 2.0 software, it provides industry leading color matching accuracy for paint and coating applications, eliminating mis-tints while improving productivity and ease of use.

Through redesign of the instrument, the installation of the Datacolor 200 is greatly



simplified. At the same time this reduces the need for calibration from every eight hours to every two weeks.

Datacolor 200's sphere geometry, combined with automatic gloss detection, assures accurate color measurement of either flat, glossy or textured samples for perfect color formulation. In addition, its compact design and integrated accessory drawer and service indicator commends it for use in the retail environment.

"It's vital for paint retailers to get the paint color for their customers right the first time, which is why many of them have routinely trusted Datacolor for their paint matching and formulation needs," said Alok Verma, paint and coatings market manager, Datacolor. "With the new Datacolor 200 spectrophotometer and the Datacolor Paint v. 2.0 software, we are proud to deliver the perfect solution for their needs."

[www.datacolor.com/200](http://www.datacolor.com/200)

## Binder for Intumescent Coatings



Michelman has commercialized ProHere V 30290, a waterborne binder designed for use in the formulation of intumescent coatings that protect structural and architectural steel. The new polymeric binder features specific adhesion to steel and metallic surfaces, is applicable in high thickness, and can be formulated

into intumescent coatings that meet fire resistance classifications of up to 90 minutes.

Reportedly exhibits superior compact and stable foaming properties. It reduces demand for coalescing agent in the formulation, resulting in a lower VOC coating. Long open time and ease of workability make it suitable for either factory or on-site application.

Michelman's ProHere family of solutions are waterborne polymer dispersions and emulsions specifically developed for use in metal coatings. The range encompasses both polymeric binders for coating formulations as well as lubricants and anti-scratch additives for metal processing and in-use lubricants.

[www.Michelman.com](http://www.Michelman.com)

## Color measurement device



The Lovibond EComparator Series provides an easy transition from subjective visual measurement to a non-subjective, accurate electronic measurement. Color graders used to the traditional comparator series sometimes find the upgrade or transition to an electronic system daunting, and with this unit, reliance on physical color difference is diminished.

With the EComparator Series, viewers can view the color difference in on-screen color, in an on-screen numerical display.

The ergonomics and intuitive interface guarantee new users can be quickly trained and easily supported. Large data storage (> 20,000 readings) and USB connectivity ensure readings can be stored and shared easily and quickly. Flexibility is further enhanced with software packages for Windows with multiple language support on-screen.

Touch-screen technology makes the EComparator Series easily programmable with instinctive menus on screen. Users can set language, date and time, view preferences and create projects with individual tol-



erance settings.

There is an on-screen warning system of: within tolerance = green; outside tolerance = red; on border of tolerance = amber. The unit has a robust casing and a small laboratory footprint.

[www.gardco.com](http://www.gardco.com)

### Corrosion Protection Coating

Manufacturers needing immediate corrosion protection on small quantities of parts now can get it with all of the quality of larger finishing systems using Birchwood Technologies' Mini Presto Black line.

The BK-1 line is a low-cost alternative and/or substitute for large scale finishing. This room temperature blackening system for iron and steel handles small production operations that require robust corrosion resistance and galling protection on critical surfaces for machine components.

The process produces a coating of less than 0.5 microns thickness and is suited for components that require a black finish for visual appeal and rust protection. It offers a short, 15-minute process that eliminates the hazards of the hot oxide process by operating at room temperature of 70 deg F. It provides high corrosion resistance and is tested for up to 800 hours humidity exposure when sealed with an appropriate rust preventive.

It can be used on hot rolled steels, alloy steels, tool steels, as well as cast iron, forged steels and powdered metal. It protects the underlying metal itself from galling and deformation.

The Presto Black BK-1 system contains seven tanks and covers, hot-plate (for heated cleaner), plus all the chemicals needed to operate a five-gallon blackening line. This includes one gallon of Presto Black MKP, 1 gallon of Presto Black RPL, 5 gallons of Dri-Touch Plus IRP3 water displacing sealant and complete instructions.

[www.birchwoodtechnologies.com](http://www.birchwoodtechnologies.com)

### Silicone Release Coating

Dow Corning has introduced Syl-Off EM 7978 coating, the latest addition to its portfolio of high-performance release coatings for food packaging and processing applications. The new emulsion is formulated for coating papers used in commercial and consumer baking and cooking and leverages advanced



silicone technology for easy, clean release performance and outstanding water repellency at low coating weights down to 0.20 g/m<sup>2</sup>.

"Dow Corning's new Syl-Off EM 7978 coating and our other food-release silicone technologies are built on continuous innovation to help our customers succeed in a fiercely competitive industry," said Kris Verschueren, global segment manager for Packaging, Dow Corning. "They know they can count on our products to deliver consistent, proven performance and value-added benefits that help optimize paper processing, control costs and increase productivity."

The coating technology provides premium-release and water repellency performance for bakery and food release papers, a high-growth market opportunity. It is designed to be effective at thin coating weights, and uses low platinum catalyst levels.

It employs in-line coating, which avoids the need to power separate equipment and processes. All Dow Corning silicone emulsions for food release meet U.S. Food and Drug Administration (FDA) requirements for food contact. Also, they comply with kosher guidelines.

[www.dowcorning.com](http://www.dowcorning.com)

### Improved Lead Paint Sealant

Ecobond LBP's Paint-it-on Leave-it-on lead paint sealant and treatment formula has been improved to give superior lead treatment capability. The formula includes lead treatment reagents, paint penetrators and water based paint that the company says provides up to a 95 percent reduction in lead hazards and controls the spread of airborne lead dust by up to 99 percent.

It now resists acid rain, and is tintable. It is applied with a standard



paint sprayer, brush or roller.

"We are passionate about restoring our environment and protecting people from the hazards of lead with our patented Ecobond lead paint technology," stated James Barthel, president.

Ecobond LBP Lead Defender can be used as an all-in-one interior primer, lead sealant and top coat, or as an exterior primer and lead sealer prior to application of standard exterior topcoat. It can be used in homes, offices, schools, industrial facilities and DOT structures.

[www.ecobondlbp.com](http://www.ecobondlbp.com)

### Waterborne Acrylic Topcoat

Sherwin-Williams, through its Product Finishes Division, has introduced KEM Aqua 3001, a waterborne acrylic topcoat for application on vinyl windows, trim, shutters and doors.

"When gloss and color retention are important in a heat-sensitive substrate, KEM Aqua 3001 provides an excellent solution," said David Calabria, director of marketing. "This coating is designed to meet AAMA 613 performance requirements for organic coatings on plastic profiles."

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HBU can result in deformation, warping, or 'oil canning,' and in general, darker shades are at greater risk to experience HBU. Said Calabria, "We know that more homeowners are expressing personal style with darker colors in windows. Our solar reflective coating allows OEMs to expand their palette to meet this demand without sacrificing performance."

The fast-drying coating can be applied direct to the substrate with one coat, or two for added performance.

[www.sherwin-williams.com](http://www.sherwin-williams.com)

### Metal Corrosion Coupons

Q-Lab Corp. has launched Q-Panel CX corrosion coupons, also known as mass loss coupons. The new coupons meet the requirements of GMW14872, ASTM B117, SAE



J2334, SAE J2721, and ISO 9227 standards.

Corrosion coupons are standardized steel panels that serve as reference specimens in corrosion testing. They help a user verify the rate of corrosion in corrosion chambers and serve as independent test monitoring devices.

Q-Lab's CX-series of standard corrosion test coupons are, the company says, ideally suited for this application – they are consistent, clean, convenient, and cost-effective. The standard corrosion coupons are available in three varieties and are offered in quantities of 30.

CXB-12 corrosion coupons are made from SAE1008-1010 carbon steel, measuring 1×2×0.125 in. (25x51x3mm). They come standard with rounded corners and a Q-shaped center hole and plastic mounting hardware for convenience. CXB-12 coupons are designed for testing to important corrosion standards like GMW14872, GMW9540P, and SAE J2334.

CXC-35 corrosion coupons are 3×5×0.032 in. (76x127x0.8mm) panels made from SAE1008 commercial-grade, cold-rolled carbon steel. CXC-35 corrosion coupons meet all of the requirements of the ASTM B117 salt fog corrosion test standard.

CXD-2.76-5.90 coupons, measuring 2.76×5.9×0.047 in. (70×150×1.2 mm) are made of CR-4 grade steel. They meet the test requirements set out in standards ISO 9227 and VDA-233-102.

In addition to the standard options, Q-Lab can also make custom corrosion coupons in a variety of shapes, sizes, alloys, and finishes.

All Q-Panel CX-series corrosion coupons include a Certificate of Analysis, and come pre-cleaned and ready to use right out of the package. This allows the user to simply

measure the panels and place them in the tester, saving time and effort.

[www.q-lab.com](http://www.q-lab.com)

### Binder for Baking Coatings

The solvents N-ethyl pyrrolidone (NEP) and N-methyl pyrrolidone (NMP) have been classified as toxic and, in the case of NMP, as a “substance of very high concern.” Elantas has developed a product, Elan-tech 603 G, which represents a new NEP/NMP-free generation of polyamide-imide (PAI) resins. Moreover, it is reportedly environmentally friendly and can be easily used as a replacement for standard polyamide-imides.

Elan-tech 603 G is a binder for the formulation of one-component baking coatings, and the company says it offers outstanding resistance to heat and chemicals. Its high degree of hardness makes it particularly resistant to MEK (> 200 passes).

It has not only very high thermal properties but also very good surface and wetting properties, making it ideal for use on various types of substrate. Compatible with glycol and polar solvents, Elan-tech 603 G has a curing temperature of 180-200 deg. C and a glass transition temperature of more than 260 deg. C, and offers very good adhesion and flexibility.

In addition, it has a slippery quality and is abrasion-resistant. Finally, as an NEP/NMP-free product, it is fully compliant with FDA and EU10/2011 regulations. Elan-tech 603 G is a binder for the formulation of one-component baking coatings with outstanding resistance to heat and chemicals.

[www.elantas.com](http://www.elantas.com)

### Spray Gun for Advanced Atomization

Carlisle Fluid Technologies, manufacturer of DeVilbiss industrial finishing equipment, has released the DeVilbiss Tekna ProLite spray gun line to industrial customers in the US and Canada. Thus unit is optimized for advanced atomization and available in gravity feed and pressure feed models in both HVLP and High Efficiency technologies.

Tekna ProLite spray guns produce a uniform spray pattern with even droplet sizes for optimum control, which is especially important in Class A finishes. They are also engineered for all-climate performance, and operators can quickly adjust to climatic

and application changes with the different air caps available.

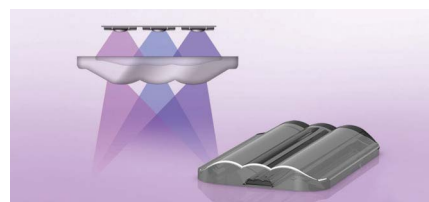
They are compatible with both waterborne and solvent borne coatings. The spray gun is fully coated both inside and out with DeVilbiss' Quick-Clean technology, which has non-stick properties resulting in fast cleanup and high corrosion resistance.

The spray gun on this unit is well-balanced and ergonomically designed for increased operator comfort and performance. The guns perform in a range of applications including wood, general industrial, metal, plastic, aerospace, leather, military, decorative, construction and light marine.

<http://www.carlisle.com>



### UV LED Optical Solution



To help accelerate UV LED adoption within the UV curing market, Kopp Glass has developed a new optical solution that utilizes LEDs of various UV wavelengths to produce a mixed, uniform light output.

For decades, mercury (Hg) vapor lamps have been the most common light source used for UV curing applications. However, as UV LED technology improves, they increasingly replace Hg lamps.

This creates new opportunities for the UV curing market, as well as new challenges. Hg lamps produce a broad spectrum with multiple peaks, while UV LEDs produce a narrow spectrum with a single peak.

The difference in spectral distributions and therefore, irradiance and energy output between the two light sources is a critical hurdle to the full adoption of LEDs into the UV curing market.

Kopp's new optic is designed to create UV LED curing systems that produce a spectrum that mimics Hg lamps, or any other spectrum that is desired.

[www.koppglass.com](http://www.koppglass.com)



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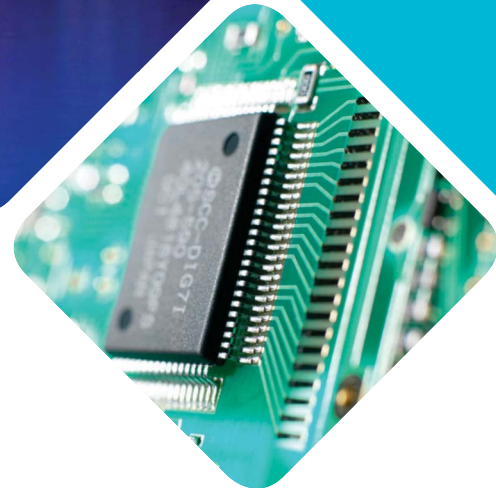
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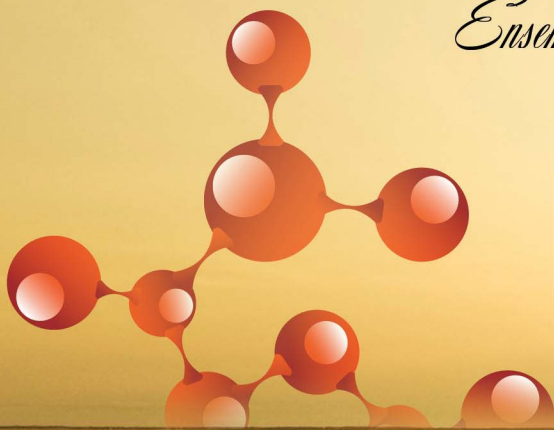
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