



# CFCM

CANADIAN FINISHING & COATINGS MANUFACTURING MAGAZINE

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March/April 2013



## Gallant Bicycles

### The Way You Like It

#### ALSO IN THIS ISSUE

- Adhesion Testing
  - Canadian Regulatory Environment
  - Wood Flooring Finishes
  - Manual Liquid Spray Guns
  - Ovens and Curing
  - Blackening and Antiquing
  - Testing Equipment
- MUCH MORE!**

**Gallant Bicycles** was conceived in early 2012 by co-owners Jason Wood and Tony Mammoliti. Both 31 years old, Tony is also the founder of YNOT Cycle, a locally-made brand of bags and other sewn products for urban cyclists. YNOT's pedal straps are a market-leader and have sold in over 30 countries. Wood is also an experienced entrepreneur, handling the Canadian wholesale and retail for Crumpler, an Australian bag company.

"We first announced our business to the public on March 1, 2013 at the Toron-

to International Bicycle Show, and we expect to deliver our first bicycles to customers in April 2013. We are specifically targeting the fast-growing and design [or fashion?]-conscious urban cycling market, which is largely ignored by the large bicycle manufacturers in North America," explains Wood.

He adds, "While it seems like everyone else has been obsessed with cutting costs by shifting production overseas, we've been obsessing over ways to combine

*continued on page 18*

#### In the News

##### Association News

###### Annual Night at the Races

The 2013 Ontario Paint Association (OPA) Night at the Races will be held Friday April 26, 2013 at the Woodbine Race Track, Toronto, ON.

For one (very low) price you get all this:

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- A program to help with your betting

So, bring your friends, relatives, customers, suppliers and colleagues. Make up a table of 4 or 6 or 8 or come on your own. Everyone is welcome. (See Calendar of Events for more details.)

##### Photopolymerization Fundamentals 2013

The seventh biannual Photopolymerization Fundamentals meeting will take place September 22 - 25, 2013 at Snow King Resort in Jackson Hole, Wyoming. By bringing together academic and industrial leaders in the photopolymerization field, this meeting

*continued on page 4*

## Mixing it Up

An ongoing trend among companies when it comes to mixing and dispersion equipment is concentrating on clean energy, such as solar and battery mass products...clean water and renewable energy.

**Buhler Inc.** says customers are looking for automated mixing and dispersion equipment that allows them to manufacture products with consistency and ease. The

equipment should use less energy and be simple to operate. They are also looking for high quality equipment that will give them the best return on investment.

The Bühler MicroMedia Mill is one of the company's most popular products. It can grind media down to 20 microns while maintaining very high flow rates.

*continued on page 12*

# Painting Perfection

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# Canadian Dollar Fall and Rise

Despite lying groundhogs, Spring is finally here. It is a time to look at housing price fluctuations as buyers start buying. It has us looking at the rise and fall in the Canadian dollar, which experts say is related to the former. And then there is the new spring colour trends in paint and coatings for architectural and automotive.

In mid-March Statistics Canada reported a rise in the Canadian Dollar after it had suffered a brief drop. Experts say the housing market has a significant role in the stability of the economy and the rise of the currency.

The Loonie apparently closed 0.48 of a cent at 97.82 cents US at one point in March. Meanwhile, the Canada Real Estate Agency revealed a 2.1 per cent drop in home sales in February. Several factors have aided the Canadian currency climb according to the experts.

They say the rise of consumer prices in

the US is also one of the underlying issues. Higher prices were triggered by a 9.1 per cent rise in gasoline rates in the US. However, consumer prices, rose to 7 per cent.

Similarly, Statistics Canada reported a steady household credit market debt to disposable income ratio at 165 per cent for the last quarter of 2012. There was, however, a 1.4 per cent hike in the household net worth in Canada.

Statistics Canada also reported that the sum of the net worth of persons and unincorporated businesses as well as government and corporate sectors saw an increase of one per cent and reached \$6.9 trillion.

In a world of increasing prices, this is probably the first issue in a very long time where CFCM did not have industry price increases to report. That of course doesn't mean that they are not still happening.

Now on to colours... In Architectural

Coatings Blue continues to demand attention and influence other colours according to various paint manufacturers. Greens have been influenced by blue with aqua's and teals still in the lead compared to previous years, while lighter and brighter greens like mint and emerald are moving into the spotlight. Purples have been influenced by blue, with periwinkle being paired with oranges and yellows. Red and oranges seem to be inseparable, with both being combined for exciting corals and bright orangey-pinks along with sophisticated reds. Yellow offers both bright yellows infused with orange at one end and very soft pale tones at the other. Warmer browns and charcoals are emerging as the neutral of choice. Good bye grey? We will have to wait and see.

In Automotive colours, PPG previously announced results from its annual survey to be:



- white (22 per cent)
- silver (20 per cent)
- black (19 per cent)
- gray (12 per cent)
- red (9 per cent)
- natural (8 per cent)
- blue (7 per cent)
- green (2 per cent)
- other colors (1 per cent).

In other news, please enjoy the case study of Gallant Bicycles. CFCM has never done a case study of a bicycle production line. They also offer several colour choices.

If you consider yourself an industry expert and would like to write for CFCM please don't hesitate to contact me:

*sandra.anderson@cfc.ca*

## Contents

### FEATURES

#### Paint and Coatings Manufacturing

##### 12 Mixing and Dispersion Equipment

Continued from page 1, a look at when to change your blade and what manufacturers have available.

##### 14 Adhesion

Trends in Adhesion Testing.

##### 15 The Canadian Regulatory Environment

Gary LeRoux talks about the nature of regulations in Canada and much more.

#### Industrial Finishing

##### 17 Oven and Curing Technology

A look at trends in the world of ovens and curing.

##### 18 Case Study: Gallant

Continued from page 1, a business profile and case study about new company Gallant Bicycles in Toronto, ON.

##### 22 Wood Flooring Finishes

The newest technologies in waterborne, UV and oil wood finishes for floors.

##### 23 Manual Liquid Paint Spray Guns

Manufacturers introduce their newest products and how they meet customers' needs.

#### Plating and Anodizing

##### 27 Testing Equipment

Passing the Test – equipment available for measuring and analyzing in the plating and anodizing process.

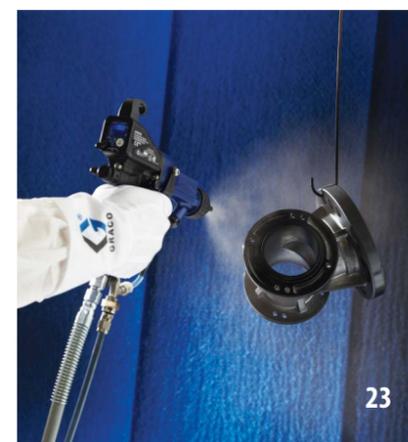
##### 28 Blackening and Antiquing

Stewart Tymchuk discusses Oxidation, Patination and Antiquing.



### DEPARTMENTS

In The News	4
People	6
CPCA Corner	8
Dave Saucier: To Regulate or Not	13
New Products and Technologies	30
Calendar of Industry Events	31
Subscription Form	34
AD Index	34



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Continued from page 1

addresses numerous critical and fundamental aspects related to photopolymerization.

The meeting will be comprised of numerous invited and contributed talks as well as a poster session and vendor exhibit. Abstract submission and registration are now open. Abstract submission deadline is May 3rd, 2013. Early registration deadline is July 12th, 2013.

This meeting encompasses a wide range of topics, including (but by no means limited to) Hydrogels, Biomaterials, Reversible Networks, Fundamental Formation-Structure-Property Relationships, Composite Networks, Smart and Responsive Networks, Novel Network Formation Strategies and Reactions, Unique Polymerization Mechanisms, Thiol-Ene Polymerizations, Cationic Polymerizations, Novel Initiation Systems, Oxygen Inhibition, Heterogeneity, Polymerization Kinetics, Novel Concepts and Emerging Applications.

This conference is presented by RadTech - The Association for UV & EB Technology and Colorado Photopolymer Solutions. The conference chair is Professor Chris Bowman from University of Colorado.

[www.radtech.org/pf2013](http://www.radtech.org/pf2013)

## ACA Assumes Management of National Council to Prevent Delinquency

The American Coatings Association (ACA) has assumed the management responsibilities of the National Council to Prevent Delinquency (NCPD). NCPD is a nonprofit 501(c)(6) organization battling the spread of graffiti vandalism, and misguided state and local governmental activities aimed at restricting the sale of legitimate spray paint products. The council works diligently with state and local communities to develop comprehensive anti-graffiti programs that do not infringe on the retail shelf space for spray paint.

NCPD was created in 1994 after the city of Chicago banned retail sales of spray paint. Since its inception, the council had been managed by Bob Hills of Hills Communications Inc., who passed away in December 2012. A fierce friend of the aerosol paint industry, Hills helmed the council with great success, thwarting multiple proposed

bans or lock-up ordinances for spray paint.

## ACA Announces 2013 CoatingsTech Conference John A. Gordon Best Paper Award Recipient

The American Coatings Association (ACA) is pleased to announce that Brian Hinderliter, associate professor in the Mechanical and Nuclear Engineering department of Virginia Commonwealth University (VCU), is the recipient of its 2013 CoatingsTech Conference John A. Gordon Best Paper Award. The John A. Gordon Best Paper Award recognizes the best paper presented at the CoatingsTech Conference for new and original scientific research towards the advancement of coatings technology. Submissions are judged based on technical merit, including objectivity and experimental design, relevance to coatings technology, and written and oral presentation. Hinderliter receives the honour for his paper entitled, "Water Concentration Distribution in Coatings during Accelerated Weathering," which he presented at ACA's 2013 CoatingsTech Conference, held March 11-13 in Rosemont, Ill.



Brian Hinderliter

## Company News

### Sansin Offers Free Stain for Projects

The Sansin Corp., Strathroy, ON, is offering its Eco2 wood stain, a zero-waste, solid color, exterior and clear interior wood stain, to qualified projects throughout Canada and the United States.

The company is accepting applications from groups or communities that could use the stains to help beautify and rejuvenate a building or structure important to furthering the group's mission.

Project nominations should be sent to [marketing@sansin.com](mailto:marketing@sansin.com).

The organization must submit a picture of the existing structure and describe:

- The project;
- Type of wood;

- Why the building needs the donated wood stain;
- How it would make a difference;
- Total square footage of the project; and
- The contact person.

Sansin introduced the Eco2 line in 2012. It has been offered as a limited-edition stain and is available in standard colors of lava, adobe and charcoal. Some custom colors may be considered for the exterior and clears for the interior of special philanthropy projects.

Sansin researches, develops and manufactures environmentally friendly, waterborne interior and exterior wood products and technologies. The company says its stains employ water, not oil, to deeply penetrate and protect wood naturally.

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

### Arkema Coating Resins Realigns Distribution in North America

Arkema Coating Resins has realigned distribution of ENCOR, NEOCAR, SNAP and Celacor waterborne products in North America to better meet the needs of its customers. The company has announced distributors based on market and geography. In Canada products for paints, coatings, adhesives and construction products will be distributed by Nexeo Canada ([www.nexeosolutions.com](http://www.nexeosolutions.com)); and Northspec Chemical ([www.northspec.com](http://www.northspec.com)).

Products for inks and graphic arts will be distributed by Northspec Chemical ([www.northspec.com](http://www.northspec.com)).

The company has also announced distributors for ENCOR acrylic and styrene acrylic emulsion products in North America for floor care and cleaning applications.

Nexeo Solutions ([www.nexeosolutions.com](http://www.nexeosolutions.com)) will distribute in both United States and Canada.

### BASF Showcased Custom Paint Solutions at the Canadian International Autoshow

BASF Canada's Automotive Coatings business sponsored the Classic Car Collection at this year's Canadian International Autoshow, Feb. 15 to 24, at the Metro Toronto Convention Centre (MTCC). The Classic Car Collection is a 40,000 square foot display

of classic and custom cars that have been built and restored in Canada. Among the cars on display this year are a 1957 Mercedes Benz 300SL Gullwing owned by BASF and restored by Legendary Motor Cars, Halton Hills, Ontario, and a 1955 Jaguar XK 140 FHC built by Deez Rods and Ridez, Belmont, Ontario. Both cars were built and restored by BASF customers using the company's innovative Glasurit® 90 Line waterborne paint brand.

The Canadian International Auto show is Canada's largest auto show. To mark its 40th anniversary, this year's show will celebrate the past, present and future of the automotive industry, featuring 600,000 square feet of displays and exhibits.

### Fusion UV Acquisition

Following the approval by the authorities, Heraeus Noblelight has successfully completed the acquisition of Fusion UV Systems, Inc. headquartered in Gaithersburg, Maryland (USA).

With this transaction, the leading provider of UV light sources will be created under the umbrella of the Heraeus technology group. During the coming months, Heraeus will integrate the two companies into a single business unit.

### Kemira Sells Stake in Sachtleben to Rockwood

Kemira Oyj and Rockwood Holdings Inc. have signed an agreement in which Rockwood will buy Kemira's share of the titanium dioxide joint venture Sachtleben GmbH in a deal worth EUR 97.5 million.

The joint venture, which was established in September 2008 by combining Kemira Oyj's and Rockwood Holdings Inc.'s TiO2 businesses, is a leading producer of specialty TiO2 pigments for the synthetic fiber, packaging inks, cosmetics, pharmaceutical and food industries.

### Construction begins following \$600-million investment announcement

General Motors broke ground and began construction in March 2013 on a new, 450,000-square-foot, bi-level paint shop at the Fairfax Assembly and Stamping Plant in Kansas City, Kansas.

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The paint shop is part of a \$600-million investment in the plant, which builds the Buick LaCrosse and Chevrolet Malibu.

Construction will take place in five major phases during the next two years. When the paint shop is complete, the plant's footprint will be 3.7 million square feet – an increase of 15 per cent.

"When complete, our plant will be able to continue to paint cars with a flawless finish while using a lot less energy and resources," said plant manager William Kulhanek. "The addition of this paint shop also demonstrates GM's commitment to maintain a strong presence in the Kansas City community."

The all-new paint shop will feature substantial technology upgrades including:

- A 20-percent smaller footprint, use up to 50 per cent less energy per vehicle and reduce Volatile Organic Compound emissions
- GM-patented Radiant Tub Ovens designed to use 20 per cent less natural gas and 40 percent less electricity
- Thin Film Technology, which reduces water use and maintenance and eliminates hazardous chemicals from the waste stream
- Hyper Throw E-COAT, which places more coating in cavities and recesses for optimal corrosion protection.

"The employees at the Fairfax Plant are dedicated to ensuring they build the highest-quality vehicles for our customers, and are looking forward to working in one of the most advanced facilities GM operates," said UAW Local 31 President George Ruiz. "All of our employees are pleased to know we will be working in Kansas City for years to come."

General Motors Co. and its partners produce vehicles in 30 countries, and the company has leadership positions in the world's largest and fastest-growing automotive markets. GM's brands include Chevrolet and Cadillac, as well as Baojun, Buick, GMC, Holden, Isuzu, Jiefang, Opel, Vauxhall and Wuling. More information on the company and its subsidiaries, including OnStar, a global leader in vehicle safety, security and information services, can be found at <http://www.gm.com>.

### Arkema Starts Commercial Acceleration Program with SpecialChem to Support Kynar Aquatec Business

Arkema has selected SpecialChem's Commercial Acceleration Solutions to support the global growth of its water-based fluoropolymer Kynar Aquatec latex in the exterior building and construction markets.

Arkema has recently entered into a partnership with SpecialChem for commercial acceleration support. Arkema's Kynar Aquatec fluoropolymer latex platform greatly improves the weatherability and durability for exterior water-based coatings.

As part of its commercial acceleration program, SpecialChem will support Arkema in its business development strategy for Kynar Aquatec latex in the exterior building and construction market. SpecialChem's customized Commercial Acceleration Solutions will help bring speed and market reach, acting as an extension of Arkema's business development team. The purpose of this collaboration is to educate paints and coatings formulators and architects about the benefits of Kynar Aquatec latex and to identify active projects at formulators and end-users.

### Resinate Adds Jobs and Expands Facilities

Resinate Materials Group, Inc.™, is pleased to announce the addition of personnel, and the expansion of its laboratories and corporate offices. The facility expansion will support Resinate's growing pipeline of polyurethane dispersion products and provide research space for its new employees.

The laboratory expansion will include over 6,000 sq. ft. of research and development space, while the new corporate offices will provide 3,000 sq. ft. for management, business development and administrative activities. Over the last six months Resinate has hired 6 full-time workers to support its burgeoning pipeline. In late 2012, Resinate launched its first commercial product, a polyurethane dispersion known as Resinate® R-162 for metal substrates. 2013 is expected to see additional launches of low VOC polyurethane dispersion products and the initiation of several new

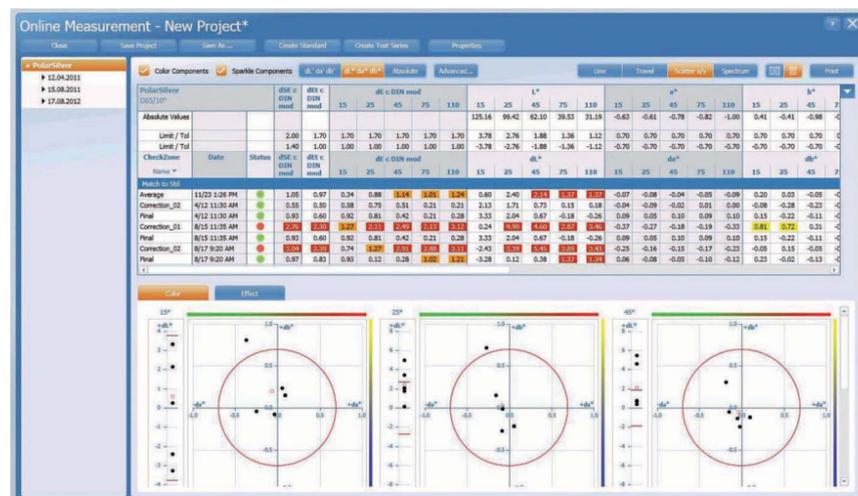
prototype programs. Resinate expects to add 5 to 7 additional team members at the chemist and technical sales level to support the additional products.

### New Software Smart-lab for Colour & Effect Analysis in the Laboratory

BYK-Gardner - worldwide partner of the automo-

tive, paint and plastic industries for quality control of color, appearance and physical properties has the new software smart-lab for color & effect analysis in the laboratory.

Color and effect control in the laboratory requires on one hand open and flexible data analysis and on the other hand efficient data han-



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## In the News

dling of large data sets. The software smart-lab analyzes all data measured with the BYK-mac: 6-angle color, sparkle and graininess. The measurements are taken in an online mode and are instantly displayed after measurement or can be retrieved from the linked database (sdf-format for efficient data analysis of large data sets).

Use smart-lab's comprehensive "Standard Management" module to set-up the color difference method and tolerances. Then just connect the BYK-mac with the PC, measure the master panel, apply the respective tolerances and compare the actual samples against the standard.

### Fiscal 2012: Bühler Continues Growth with Constant Net Profit.

The Bühler Technology Group looks back on a challenging fiscal 2012. It increased both its order intake (+5%) and its turnover (+13%), with acquisitions accounting for the rise in order intake. As a result of the substantial investments made by the Group for securing its long-term future, the EBIT margin declined to 7.3% from last year. Its net profit of CHF 161 million was at the level of a year ago. For the current fiscal year, Bühler expects sales revenues at the same level as 2012 and a return to a double-digit EBIT margin.

Bühler looks back on a challenging fiscal 2012. Its order intake increased by 5% to CHF 2345 million; in organic terms, it was at the level of a year ago. Of the three divisions, Grain Processing as well as Food Processing booked somewhat higher orders, whereas the orders received by the Advanced Materials division were consolidated at the record level of the previous years.

Geographically speaking, developments varied widely. With 12% less orders received, Europe was especially disappointing. On the other hand, North America grew sharply (+44%). The plus side also includes the markets in China (+13%) and the Middle East/Africa (+7%). In all, the orders received from emerging countries thus for the first time exceeded 50% of the Group's total volume.

Turnover (sales revenue) rose by 13% to CHF 2409 million; adjusted for acquisitions, it exceeded the value of the previous year by 5%. The sharpest rise in sales was achieved by the Advanced Materials division (+47%) and was mainly driven by acquisitions. Grain Processing boosted its sales on a purely organic basis by 7%, whereas the revenue of Food Processing was 3% below the value of a year ago.

Results are automatically shown in a data table and graph. Based on your tolerances the values will be marked Red – Yellow – Green like a "traffic light" Pass/Fail analysis. Additionally, the data can be shown in a scatter plot, line or color travel graph. Spectral values are charted grouped by sample or angle.

### Reshaped Clariant Increases Profitability in the Fourth Quarter

Repositioning of Clariant's portfolio is well underway with an agreement to divest three businesses already signed.

Continuing operations with full-year sales growth of 8 per cent to CHF 6.04 billion and an EBITDA margin of 13.3 per cent on solid development in the core businesses.

The company's net result from continuing

operations of CHF 211 million due to strong fourth quarter.

There was a dividend increase of 10 per cent to CHF 0.33 per share proposed.

For the full-year 2013, Clariant expects a further progress in sales and profitability compared to 2012 by focusing on growth and continuous cost efficiency.

## People

### New at CPCA



Susan Sykes

Susan Sykes has joined the Canadian Paint and Coatings Association as Director, Communications and Public Affairs. Susan has extensive association experience having worked for the Canadian Fertilizer Institute (CFI) for five years as Director, Public Affairs. While at CFI she was involved in all aspects of communications including raising awareness of the industry's contributions to the environment, economy and society. She undertook several initiatives to improve communications with associa-

tion members and is well versed in all aspects of communications including writing/editing, event planning, project management and media relations. Prior to her work at CFI she was Client Services Director for a marketing agency in Ottawa, Director of Public and Investor Relations for a hi-tech firm and Director of North American Public Relations for one of Ottawa's most successful software companies. Susan has a B.A. in English Literature from Carleton University.

### Sartomer Appoints New Market Managers

Sartomer USA LLC, Exton, PA, has appointed a team of dedicated market managers to drive growth and leadership in each of the company's major markets (Coatings, Graphic Arts, Adhesives, Electronics and Advanced Materials). Each manager is responsible for leading the company's commercial activities in their assigned segment. The team reports directly to Heather Rayle, Senior Business Director for Sartomer.

Appointments to this team include: Terry Quinn, Market Manager for Coatings and Chemical Intermediates; Chris Gebhart, Market Manager for Adhesives, Electronics and Advanced Materials; James Goodrich, Market Manager for Graphic Arts; and Jim Zawicki, Marketing Communications Manager.

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# General Motors Announces Investment of \$250 Million to Ingersoll CAMI Plant

STORY BY MALAKAI DARIEN FOX

Earlier this March, General Motors announced their intention to invest 250 million dollars into the CAMI Assembly Plant in Ingersoll, Ontario. The announcement was made to a floor of cheering assembly workers on March 8, who had been hoping for such an investment and what it would mean for the factory's future. According to both companies' official statements, the Oshawa based General Motors will finance CAMI in installing flexible body shop equipment and tooling. This will allow CAMI to convert the manufacturing facility to fully support future vehicle production.

Flexible body shop equipment and tooling allows multiple body panels (floor pans, rocker assemblies, and underbodies) to be welded with the same set of programmable tools and robots. By leveraging common manufacturing processes, the company can construct a variety of vehicle architectures within their facility instead of having to ship out to other servicing locations. The company informed CFCM magazine that the investment does not include paint or finishing departments at this time, and while neither CAMI nor General Motors has made an official announcement regarding the full extent of upgrades this construction will offer, the migration to a flexible manufacturing facility will enable CAMI to build multiple products with an architectural linkage to other global production operations, increasing its efficiency as a top assembly plant.

President of General Motors of Canada, Kevin Williams, stated on the company's official domain page that the 'conversion of the CAMI Assembly Plant to a flexible manufacturing facility will provide CAMI with the ability to produce multiple global architectures and body styles. Continually improving the flexibility of our manufacturing operations helps us respond quickly to customer needs and market demand'.

The plant, which currently manufactures and assembles the Chevrolet Equinox and GMC Terrain, was reportedly in competition with U.S. plants for future production of the next generation models of those vehicles.

"We have had a strong start to 2013 with customer demand for our newest vehicles driving improved sales," added Williams, "This is strong confirmation that our investing in manufacturing flexibility, finding ways to bring new products to market faster, is the right strategy."

Les Bogar, CAMI Assembly Plant Manager, had this to say about the decision. "Manufacturing flexibility is a key priority for us, and this investment will give us the ability to build a higher variety of differentiated products, on multiple platforms.

This also gives us the ability to introduce and deliver new products to the market at a faster pace".

The investment follows on the heels of a 90 million dollar investment that General Motors of Canada put in to CAMI back in 2009 to increase productivity following the withdrawal of Suzuki Motor Corporation as part owner.

General Motors, it appears, has faith in the small town's Assembly Plant.

"This announcement today starts our journey, where we must continue to demonstrate our continuous improvement culture and small business behaviors", announced Bogar on the C.A.W Local 88 website.

This investment will give CAMI the ability to build a higher variety of differentiated products on multiple platforms and at much lower costs. This also gives GM the ability to introduce and deliver new products to the market at a faster pace.

The company had no specific announcements to make on future vehicle production, a spokesperson said, but a union official said an investment of that size is always a good sign. "Anytime you throw that kind of money into a plant it very much helps our job stability in the long term," CAW plant chair Mike Van Boekel told the Toronto Star. "The plant, which is operating at capacity, employs 2,700 people, including 2,400 hourly workers. "The floor's very excited, very happy with the announcement."

While the company has made no announcements on whether this expansion would create new jobs immediately, there is talk about what such an undertaking would mean for the township of Ingersoll.

The expansion is no small feat either. With the necessary finances now in hand,

CAMI is looking to establish a 336,000 sq. ft. expansion that will be added on in a few months once construction begins. The new lot and building will house the new body shop tooling and equipment.

The announcement came just days before CAW Local 88 entered bargaining with General Motors for a new contract covering the CAMI plant.

Earlier this year, the union agreed to open its contract at the plant six months ahead of schedule, saying it would help the plant win new product mandates and secure its members jobs. This of course, was spurned on with both sides eyeing the expansion on the horizon.

CAW's negotiations with General Motors of Canada were scheduled to commence Monday, March 11.

The union is seeking the same economic deal its members received at other GM plants last fall. That deal maintained the current pay rates for existing employees but cut starting rates and benefits for new hires.

The current labour contract was set to expire in September. The union is now expecting to have a deal in place by late March.

"If we can get an agreement in 2013, that's pretty good job security for the next eight years," says Van Boekel.

According to CBC, North American auto makers have been gaining momentum recently as the industry recovers from the severe downturn that started in late 2008. Industry observers have predicted 2013 North American sales will surpass last year's as the U.S. economy revives from the recession.



Photo courtesy The Financial Post.

With the next generation of Equinox and Terrain vehicles due to launch in 2015, this investment is being seen as a good sign by both sides on every level.

CAMI Automotive, originally Canadian Automotive Manufacturing Inc., was an independently joint venture of automobile manufacturing in Ingersoll, Ontario and formed the third step of GM's three pronged initiative of the mid 1980s along with NUMMI in California with Toyota and Saturn Corporation. CAMI was the least successful of the three, but is now the sole-survivor. In 2005, Harbour Report, CAMI was ranked Third in North America for truck assembly and Small SUV category. In its beginning, CAMI was owned in a 49-51 percent split between Suzuki and General Motors of Canada Ltd, with Suzuki withdrawing in 2009. General Motors now run the enterprise in its entirety.

Headquartered in Oshawa, Ontario, General Motors of Canada Limited (GMCL) employs more than 9,000 people across the country and is a recognized leader in green manufacturing. GMCL markets the full range of fuel-efficient Chevrolet, Buick, GMC and Cadillac vehicles and related services through Canada's largest automotive dealer network.

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**CPCA Welcomes New Members**

CPCA is pleased to welcome Thames River Chemical Corp., Dampney Company Inc., Chromaflo Technologies, EMCO Chemical Distributors Inc., and the Alberta Recycling Management Authority as our newest members.

Our members manufacture and distribute more than 90 per cent of the paint available in Canada. Anyone involved – in any way – in the paint and coatings business can have a voice in determining sector positions on industry-critical regulations and in developing future regulations by joining CPCA. Our members also shape product stewardship programs and gain influence in industry committee meetings on critical sector issues. We also offer our members unique opportunities to meet Canadian legislators and regulatory officials face-to-face and access to industry-targeted, twice-a-month news on sector issues, regulations and legislation as well as key sector statistics on industry's performance. Our monthly newsletter, Prime Time News, keeps all members posted on important matters in the paint and coatings sector in Canada.

**Industry Responds to Revised VOC Regulations**

CPCA has submitted comments on the government's proposed revised regulations with regards to VOC concentration limits in certain products. Our members were in general agreement with the initial proposal published in 2008. However, the revised proposal presented at the February 7, 2013 consultation meeting introduces significant changes, such as stricter limits for 25 categories and new limits for 30 other categories. Some of our Canadian paint manufacturer and supplier members are most concerned with the proposed full alignment with CARB/OTC in Canada over a period of less than 5

years. It should be noted that regulations under both CARB and OTC have not been fully implemented by the respective states in the U.S. and in many cases will not be for 10 years or more in some cases. Consequently, we are concerned about the potential for negative economic impacts this proposed regulation will create in the marketplace and have asked the government to reduce the administrative burden, especially on small and medium-sized enterprises (SMEs).

The industry has also asked for an immediate exemption of a majority of the thirteen compounds that are candidates for Schedule I additions. This is critical for Canadian manufacturers who rely on many of these products in their product formulations.

The government plans further consultation with industry with regards to this regulation as well as a voluntary socio-economic impact study to be undertaken this spring.

**Chemical Management Plan Activities: Impact on Paint & Coatings Sector Until 2020**

There are still some pending issues for the paint sector with the Challenge and more especially with Petroleum Sector Stream Substances (PSS4). Draft Screening Assessment Reports (DSARs) for the PSS4 substances are expected to be published between mid-2013 to 2016 with 11 subgroups currently being considered. Other sectoral Risk Assessment and Risk Management issues are expected to emerge from the subgroupings of CMP-2 substances within the main groupings of CMP-2. The groupings that relate more closely to the paint sector are Azo, Phthalates, Cobalt, MDI/MDA, Internationally Classified, Flame Retardants.

The main strategies to be used for subgroupings substances will be based on

commonalities in properties, functional groups, etc. The results for the thousands of substances contained in the Domestic Substances List (DSL IU) Part II will be known early in 2014. They will inform Environment Canada and Health Canada on a more definitive methodology with respect to the CMP-3 classification, priority-setting and subsequent actions to adopt for chemicals in commerce and not in commerce with respect DSL-IU substances and polymers. The risk management of polymers is a top concern for the paint sector and many other industrial sectors in Canada.



entire product be reformulated or re-staged including the container, applicator, artwork, labeling, R&D and field tests. All of which will take months to achieve. The use of accurate definitions, terminologies

This is critical for Canadian manufacturers who rely on many of these products in their product formulations.

**Snacs and Compliance Issues**

Except for cases of imminent hazards, CPCA generally supports the industry position with respect to the need for appropriate transition time for an effective implementation of Significant New Activity Notices (SNACs), especially those establishing a zero or other low threshold quantity. The industry is arguing that SNACs effectively mean "prohibition of use" in Canada. Complying with a SNAC is not just a question of making a chemical substitution or stopping the substance production or sale, as it may require the

related to targeted activities and the use in the present SNACs appear to have been definitions and terminologies targeting specific application fields

**New Role for Pollution Prevention (P2) Plans**

Approximately 13 Pollution Prevention Planning (P2) Notices have been published to date (two of which are amendable P2 Planning Notices). Due to Environment Canada's requirement to limit the use of regulations (one-for-one rule), the P2 plans will likely be used more extensively in CMP-2 and CMP-3. They will also be used more because they are considered a multiple-substance tool that can encompass many sub-groupings for substances. Consultation with stakeholders will continue to be a top priority for Government during both the development of an initial P2 Notice and before proposing the addition of any new substances to a P2 notice. Sectors that are well defined and organized – and that have several substances listed in the CMP groupings and subgroupings – will be best suited for P2 Plan Notices. Regional P2 planning requirements may be included under the "factors to consider" section of a P2 Plan.

**Codes of Practice: Setting a Health Canada Precedent**

The pre-consultation meeting with the paint industry on July 19, 2012, and the recent publication in Canada Gazette, Part I, of the main risk management instrument identified for 2-butanone oxime or

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MEKO reveals a 'non-mandatory code of practice' on labeling requirements and a precedent for Health Canada. CPCA has had several discussions with Health Canada with respect to limiting the use of this Code as it relates to specific wording and usefulness of some of the labeling statements for indoor alkyd products that are meant to ensure enhanced ventilation for the consumer. These statements will have to be gradually added to already space-limited paint labels over a period of three years. The final code will be re-published in the Canada Gazette I by mid-Summer for final adoption. CPCA submitted official comments to highlight some of the safety issues that may arise from the use of statements and also to send a strong message to Environment Canada and Health Canada on the importance of getting this new code accurate. Europe is already considering how it might address MEKO with respect to appropriate exposure modeling related to toxicity issues.

### Validation of Models for Risk Assessment and Risk Management

Since last year, CPCA and its members have been involved in the validation of model parameters that are used by Environment Canada and Health Canada with respect to simulation regarding certain paint product categories. These parameters are the foundation for industry's ongoing efforts to help refine and improve government analyses of paint-related substances in the Chemical Management Plan (CMP-2 and CMP-3). The goal is to ensure these models are more realistic and less conservative in their application.

### Review of Models for Environmental Concerns

CPCA's Paint and Coatings Working Group (PCWG) has been involved in reviewing the 2009 OECD Emission Scenario Document on Coatings Industry (Paints, Lacquers and Varnishes), on which Environment Canada will base its assessment for substances of environmental concerns. There are substantial revisions to be made on current model parameters for the Canadian paint industry to reflect the current reality of increased regulatory, environmental, health and safety obligations at all levels of government. Many of these have come to light over the last ten years to address lifecycle management (Note: the OECD document is based on 2000-2002 data). CPCA organized four plant visits in the Montreal area for the benefit of several Environment Canada risk assessors and risk managers who will use the data col-

## The goal is to ensure these models are more realistic and less conservative in their application.

lected to further refine the development of risk mitigation measures – based on reality. In December 2012 CPCA also submitted formal comments on the OECD document and will discuss the OECD emission scenarios at its next PCWG meeting on April 10, 2013. Information submitted by CPCA on Emission Scenario Document (ESD) for the coatings industry has been delivered to the OECD Task Force.

### Review of Exposure Models for Health Concerns

Health Canada is also seeking input on the best way forward for further engagement with the paints and coatings sector related exposure-specific modeling or methodology development related to paint and coatings scenarios. The Paint and Coatings Working Group is supportive of this process and will be examining this further within the next year or so, with the help of other paint industry associations in the USA and Europe who are members of the International Paint and Printing Ink Council (IPPIC). The ultimate goal is to determine what can be done to further improve models that are being used by Health Canada to assess exposure to paint-related substances as a matter of human health concerns. The majority of risk assessments made under the Challenge Initiative relied on ConsExpo to estimate exposure from the use of paint products.

CPCA has reached out to other national paint associations to find out which strategies they have put in place to improve the RA/RM of chemicals and the use of current exposure models such as CONSEXPO and WPEM in their respective countries. In Europe, REACH requires manufacturers and importers to carry out a risk assessment for each use of a hazardous (dangerous) substance, which is manufactured in quantities of 10 tonnes or more per annum. They are also required to identify the risk management measures to ensure each use is safe to man and/or the environment. Some European paint groups are working on a set of Specific Consumer Exposure Determinants (SCEDs), which will similarly allow a more realistic Tier 1 chemical safety

assessment of consumers' exposure to paint-related substances via typical use. However, higher-tier assessments are still beyond the scope of their current mandate, and thus will have to be addressed on a case-by-case basis.

In France and Germany, there has been some work done with standards organizations to develop models and measures via the ISO and other standards setting organizations. Closer to Canada, the American Coatings Association (ACA) has just embarked on an exposure modelling study on appropriate exposure modelling methodologies based on sound science.

This will help inform both industry and government in their ongoing assessments of chemicals. Industry views this as an important undertaking as evidenced by the fact that ACA collected \$1 million from members to engage chemists and labs to conduct basic research on this front. However, the study could take up to three years to complete.

### Save the Date for CPCA's 100th Anniversary Conference

Plan now to attend CPCA's Annual Conference, to be held October 20-23, 2013 at the Fairmont Chateau Laurier in Ottawa. This year's program offers numerous opportunities for delegates to learn, interact, and share, including planned sessions on innovation and economic outlook, guest speakers from government and affiliated groups, and a not-to-be missed celebration of CPCA's 100th anniversary. Consult the CPCA website at [www.cdnpaint.org](http://www.cdnpaint.org) for program and registration information.

## Save the Date!

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*circa 1936*

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**Strike Out Arthritis Bowling Event a Success**

The Ontario coatings industry has come one step closer to striking out arthritis with its annual fundraising bowling event held in February 2013. Companies who sent teams included Univar, Branntag, Akzo Nobel, Cloverdale Paint, Unipax, Dominion Colour, LV Lomas, Chemroy and CAPO. There were approximately 60 bowlers. Organizers of the event were: Lorna Catrambone, Arthritis Society; Mary Bray, Brenntag; Lisa Martella, Univar; Chris McDougall, Univar; Pasky Oliveria, Cloverdale Paints and Jason Young, Emco Chemical. The top Fundraising Individual is Therese Giaschi from Akzo Nobel who raised \$2005. Top Fundraising Team is Akzo Nobel who raised \$3015. Total money raised for the day was \$13,732. CFCM was there to capture photo highlights.

Photos by Sandra L. Anderson



The Strike Out Arthritis bowling event was held at Classic Bowl in Mississauga, ON.



A good turn out of players.



The Univar group: (back row) Chris McDougall, Chris Halberg, Joe Argos, Adam Lasenzaniro, Steve Brooks, Heather Paterson, Rob Castillo, Pat Martin, (front), Angela Mavroudis, Gary McCullagh, Valarie Melega, Aneeta Chaudry, Barbara Bannerman and (kneeling) Lisa Martella.



The Dulux team from left to right: Carmen Teixeira, Ronald Koo, Dawn Duffy, Taylor Duffy (did not bowl, daughter of Dawn and was diagnosed with JIA last October) and Therese Giaschi



The Unipex team: Barney Bailie, Charlie Camilleri, Paige McPeake and Josh Bailie.



Charlie Camilleri of Unipex (centre) with players from Dominion Colour Suzanne Letrondo and Ling Jiang.



Third place winners from Univar, Valerie Melega, Rob Castillo, Barbara Bannerman and (Missing) Aneeta Chaudry.



First Place winners, one of the three teams from Cloverdale Paint with Lorna Catrambone (left) of the Arthritis Society and Jeff Lockhart, Eileen Taylor, Josel Harris and Andy Asper with committee member Pasky Oliveria.



Second Place from Univar: Patrick Martin, Chris Halberg, Adam Lasenzanaro and Heather Paterson.



CFCM magazine helper for the day, Heidi Lloy.



One of the event's organizers, Jason Young of EMCO Chemical Distributors Canada Ltd.

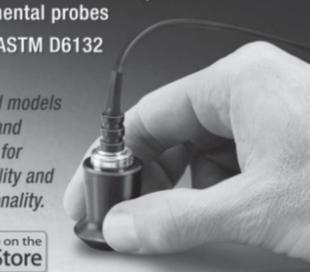
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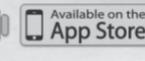
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The OMEGA is currently available for product trials at the NETZSCH Feinmahltechnik test center in Selb, Germany, and will soon be available in Exton, PA.

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**IT IS TIME TO CHANGE YOUR BLADE**

The most neglected part of a high-speed disperser is typically the dispersion blade. This relatively inexpensive part could be the difference between making and losing profits on every batch produced. When the dispersion blade is in new condition and operating at peak performance, batch times will be shorter than using a worn or damaged blade. Shorter batch times will allow the machinery to make more batches in a given time frame and will use less energy per batch, saving the company both time and money.

Replace a dispersion blade before it becomes worn or right after being damaged, to add to your bottom line. An impeller that is damaged will be out of balance and will cause premature wear of the bearings and belt. Determining the time to change a damaged blade is easy. If one or more of the teeth are bent or deformed in any way, it is time to change the blade. Determining when to change a worn blade can be a little more difficult. Following are some examples of how to determine when it is time to change an impeller.

If you check the teeth of a new impeller, you will see that the edges of a well-made dispersion blade are crisp, clean and squared off. These squared off edges are designed to give the impeller the most efficient grind. You should start a regimen of checking the blade for signs of wear in a periodic manner. As the blade begins to wear, the teeth will start to round off and in time will eventually erode away until there are no teeth left. Such rounding of the corners decreases the effectiveness of the dispersion blade and it should be replaced.

When installing a new impeller, run a standard batch of material and record the amps required to run the impeller in the said batch. Check the amp draw of the machine in the same type of batch, maybe once a week or month depending on the abrasiveness of your products. When there is a noticeable decrease in the amp draw for the same batch, the impeller is losing its effectiveness and should be replaced.

Every batch of material has a specific recipe including a dispersion time. After installing a new impeller, check the batch several times during the dispersion phase and record how long it takes to bring the batch to spec. This recorded time should be the guideline of how long it takes to make a batch properly. As the blade starts to wear, it will take longer to produce the desired results, costing the company time and money. The dispersion blade should be replaced when you can no longer achieve a proper dispersion in the same amount of time as when using a new blade.

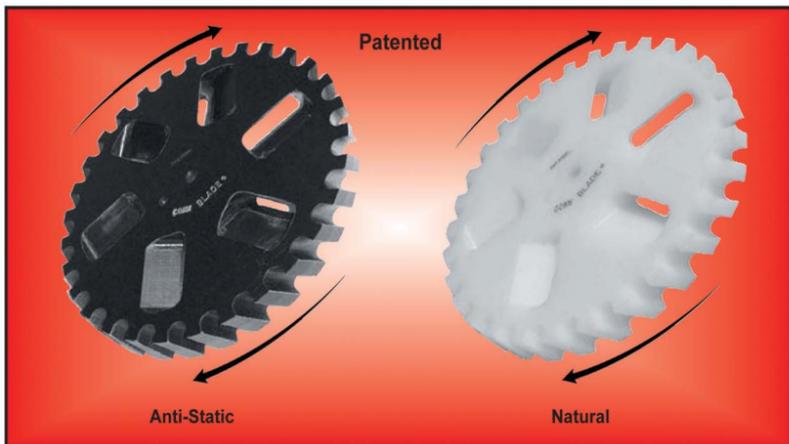
If you experience excessive wear on your impellers and are changing them often, there are coatings available to make blades last longer. Tungsten carbide is a coating that is spray welded to the tips of the impeller to give them extra abrasion resistance. A typical tungsten carbide coated blade will last up to four times longer than a non-coated blade. These coated blades are usually used while dispersing highly abrasive materials. Remember, impellers are relatively inexpensive to replace, but could be the difference between making and losing profit. You should check the blade often for worn or damaged teeth, check the amp draw of similar batches of material on a periodic schedule and check to make sure that your batches are being produced in the right amount of time. If the teeth are worn or damaged, amps have dropped or it is taking longer to make batches to spec, it is time to replace your impeller.



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ing uniform blending and de-aerating of the mixed materials.

Manufacturers of mixing and dispersion equipment are meeting the challenges of today's marketplace.

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# To **REGULATE** or **NOT** to Regulate

BY DAVE SAUCIER

I had the opportunity of attending an intensive incident management systems (IMS200) training program provided by the City of Toronto to its employees. I was the only outsider attending the course at that time. We ran through some tabletop exercises that involved chemicals, specifically, a tank truck of gasoline overturned on a residential city street. As background, the tanker was leaving its terminal, which was built long before any housing developments. The tanker overturned as a result of avoiding an automobile that ran a red light.

At the conclusion of the exercise, one of the groups provided a debrief in front of the rest of the participants. The first recommendation was to create regulations to prevent tankers with gasoline from overturning. The second was to create another regulation to ensure that tankers couldn't operate in residential areas. There were other recommendations primarily aimed at driver training, etc. At question period, someone challenged the recommendations about regulations, reminding participants that we have had regulations in place for almost 28 years regarding the transport of dangerous goods. Furthermore, the regulations also include driver training requirements.

That person then asked how a new regulation would prevent the automobile from running the red light. Likewise, enforcement of the traffic act would have done nicely to prevent the incident, but we cannot realistically expect to have the police at every street corner.

The demand for increased regulation is a natural reaction by the general public to an incident. It's always the first consideration, regardless of circumstance. The last consideration is always the cost of creating a regulation.

The Canadian Government (GoC) regulatory process requires a cost and bene-

fit analysis to be included with all draft regulations published. The Regulatory Impact Analysis Statement (RIAS) provides the fine detail on what a regulation will cost and what benefits, including economic, will be derived for Canadians.

The GoC also has a Red Tape Reduction policy that effectively requires the government to reduce burdens on businesses by taking away a regulation for everyone that it creates. When we consider the chemical sector, we are all on the verge of being inundated with new regulations. Examples are the Globally Harmonized System (GHS), Volatile Organic Compounds (VOC) for Other Certain Substances, and developing Transport Security regulations from the Surface and Intermodal Security directorate (SIMS) of Transport Canada. These three examples are new regulations that we eagerly wait to hear about the reduction of burdens to businesses.

Regarding GHS, they will trade off the current Workplace Hazardous Materials Information System (WHMIS) regulations. Any burden reduction? Hardly, as all Canadian businesses will have to redesign labels, rewrite Safety Data Sheets and develop new training programs to implement GHS. As for the proposed VOC regulations, what could be traded off to reduce the burden? Talk is that they will collapse the other two VOC regulations (architectural and automotive paint) and combine all three regulations into a single VOC regulation. This is done to simplify life for the regulatee.

Finally, for new SIMS security regulations, I'm left scratching my head on what can we trade off to reduce burden of this new regulation.

**The first question** – are these regulations necessary? The answer is, quite simply, yes. All three are based on international

agreements, for which Canada has agreed to participate.

**The second question** – are these regulations beneficial to Canadians? For the average consumer, the answer is not likely, unless costs are reduced resulting in lower prices at the retail store. For businesses, these three examples provide absolute tangible benefits because harmonization is efficient and creates a level playing field, for instance.

**The final question** – what do we trade off to reduce the burden? Some could argue that the mere fact that we're harmonizing is a reduction in burden. While others could make a case that cancelling one and replacing it with another is adequate.

What do you think?

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

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# Trends in ADHESION TESTING

In the Paint and Coatings industry, most attention is often placed on two levels of what is essentially a three layered system. A painted surface is made up of a three-component system consisting of paint, substrate, and an interface, with which the latter two are joined. Without this interface, it would be next to impossible for the paint and substrate to 'stick together'. The chemicals within the coating to achieve this are called 'adhesion promoters'. For coatings to perform to satisfactory standards, they must bond to the substrates on which they are applied and to ensure this, a variety of recognized testing methods can be used. Adhesion testing is often used during coating failure investigations. Commonly used measuring techniques are performed with a knife or with a pull-off adhesion tester. Following any test, it is important to record if the bond failure was adhesive (failure at the coating/substrate interface) or cohesive (failure within the coating film or the substrate).

## WHAT IS ADHESION?

The durability and performance of coatings when binding to substrates depend on two basic properties. Cohesion is the term associated with the strength of the bonds between the various molecules of the coating films, while Adhesion is defined as the strength of the bonds between the coating material and the substrate. The recognized best procedure for testing Cohesion is the Tensile/Elongation test, but the focus in this article is adhesion. Chemically speaking, adhesion is obtained when the molecules of the coating achieve adsorption from the substrate, diffuse or penetrate across the interface to form interfacial bonds, and form chemical bonds with the interface molecules. Another way of saying it is that a durable coating will be achieved when the paint comes into contact with the substrate and develops a bond before curing and drying. This formation of bonding begins with a process called 'wetting'. It is the process by which a liquid interacts with a solid. With paint and coatings, this process involves bringing the paint into contact with an adhesion promoter. To ensure that this process has occurred, and that the interface (adhesion promoter) has

achieved the necessary bonds between the paint and the substrate, certain tests can be administered depending on the products that have been bound together. These tests are regulated by standards set by the ASTM (formerly the American Society for Testing and Materials), an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services. Formed in 1898, ASTM has a dominant role among standards developers in North America. Their standards and methods are now used on an international level,

substrate and intersect to form an "X". The cuts must extend down to the substrate. At the vertex, the point of the knife is placed, and an attempt is made to lift up the coating from the substrate or the subsequent layer.

A standard method for the application and performance of this test is available in ASTM D6677.

## TAPE TEST

A more formal version of the knife test is needed on metal surfaces. The X-cut tape test is primarily intended for use at job sites. Using a sharp blade, two cuts are

and is best repeated when the pull-off force is perpendicular to the surface being tested.

A standard method for the application and performance of this test is available in ASTM D2197.

## PULL-OFF TESTS

This quantitative test for adhesion involves a procedure for evaluating the pull-off strength of a coating system from metal substrates. A loading fixture, commonly called a dolly or stub, is bound to a coating by an adhesive. By use of a portable pull-off adhesion tester, a load is increasingly applied to the surface, increasing and maximizing tensile stress, until the dolly is pulled off completely. The force required to separate this dolly or the force the dolly withstood, is rated in pounds per square inch (psi) or mega Pascals (MPa). The dolly must exceed the minimum test strength required in order for the adhesion to be considered successful. Failure will occur along the weakest plane within the system, comprised of the dolly, adhesive, coating system, and substrate, and will be exposed by the fractured surface. Three distinct failures are possible in this test including cohesion failure (within one layer), adhesion failure (two layers), and glue failure. This test method maximizes tensile stress as compared to the shear stress applied by other methods, such as scrape or knife adhesion. Testers operate using mechanical (twist by hand), hydraulic (oil) or pneumatic (air) pressure. They are classified as being fixed aligned or self-aligning depending upon their ability to ensure a vertical pull-off force.

A standard method for the application and performance of this test is available in ASTM D4541 and ISO 4624.

Though the test methods mentioned are the main standards to which adhesion is measured, there are constant innovations to perfect each one, as well as creating new grids to measure the chemical binds between the coating and substrate.

When it comes to Adhesion, innovation comes in many forms. But in the end, it comes down to one basic principle – how good does it, quite literally, 'stick'.

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The durability and performance of coatings when binding to substrates depend on two basic properties.

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including many reputed Canadian industries. Each year, ASTM International releases an annual book of standards that contains six different categories of standards including Test Methods that the following tests fall under.

## KNIFE TEST

This adhesion test method requires the use of a knife to determine the adhesion of a coating to a substrate or to another coating. It establishes whether the adhesion of a coating to a substrate, or to another coating, is at an adequate standard. Based on both the degree of difficulty to remove the coating from the substrate and the size of removed coating, performance is gauged on a scale with ratings from 0-10, with a rating of 10 being the highest. At that point, it is extremely difficult to remove the coating from the substrate with any fragments beyond a certain size.

The process is as follows: using the knife and cutting guide, two cuts, each 1 ½ inches in length, are made into the coating at a 30 – 45 degree angle. These are made through the coating film into the

made into the coating that intersect to form an "X". Pressure sensitive tape is placed on the center of the intersection of the cuts and then removed rapidly. The X-cut area is then inspected for removal of coating from the substrate or previous coating and rated. This particular test is used more frequently within laboratory work much like the scrape test.

A standard method for the application and performance of these tests is available in ASTM D3359.

## SCRAPE TESTS

This test is generally administered within a laboratory, and unlike Cross-cut and Pull-off testing, is quite limited in the surfaces it can be administered to, needing smooth, flat panel surfaces, such as the surfaces of Compact Discs. It is used to give relative-ratings to several coated panels in order to show significant difference in adhesion. Adhesion is determined via forcing the panels beneath a rounded loop that is loaded and weighed in increasing amounts until fracture occurs. This is often performed with a Balance Beam Scrape Adhesion and Mar Tester,

# The Canadian REGULATORY ENVIRONMENT

BY GARY LEROUX

An article on Canadian regulatory environment runs the risk of glazed over eyes all around. Yes, the regulatory process can be daunting, but Canadian business can't afford to ignore it. A recent report done by the Canadian Federation of Independent Business, in concert with KPMG, estimates the country's regulatory burden "costs Canadian businesses nearly \$6,000 per employee per year, with the cost falling heaviest on small businesses." It was not as high for larger companies, but still costly. It found that compliance costs are higher in Canada than in the U.S. in all size categories except for the largest, that is, those with 100 or more employees. Employee costs for those businesses in Canada were pegged at \$1,146 per employee vs. \$1,278 in the U.S.

Consider the costs from the proliferation of regulations impacting Canadian companies using chemicals. The Chemical Management Plan's first phase cost taxpayers \$300 million. The second phase, announced in October 2011, has a tab of \$500 million over four years, which is just the cost on the government side. This will be followed by yet a third phase. There are enormous costs associated with the time and effort related to data collection for companies in all sectors including paints and coatings, plastics, fertilizers, oil and gas, cosmetics, etc. The costs to industry can be counted in tens of millions of dollars.

Then there is the cost of ongoing compliance with existing regulations for health, safety and environment. As associations and as businesses, we cannot ignore the nature of the regulatory environment and must seek ways to ensure that it does not stifle important industry sectors. A full and complete understanding of how the system works allows us to negotiate better regulations for industry over the long term.

Canada's regulatory regime has been here since Confederation and it is not going anywhere. However, it is evolving and changing to adapt to the times and to policies of the government of the day. There are more than 20,000 regulations on the books in Canada and it is a safe bet that there are more to come.

Regulations are, in effect, a manifestation of a company's social license to operate. Most companies have gone even

further on this continuum and embraced sustainability and corporate social responsibility measures beyond regulations. They want to show shareholders, governments and the public that they fully understand the growing demands to reduce their environmental footprint.

In theory, regulation is a necessary foundation of market economies. An effective regulatory system provides consistency, fairness, and transparency, and supports innovation, productivity, and competition. An effective regulatory system is not just for protective purposes. In fact, regulation is often an enabler. For example, in the economic sphere, it establishes the rules for fair markets, reduces barriers to trade through alignment with trading partners, clarifies conditions for the use of new products, services, and technologies, and fosters new investment. When poorly executed, however, it often achieves the opposite.

The nature of regulations in Canada is such that they are subordinate legislation that also includes orders, directives, tariffs, bylaws and proclamations. The Statutory Instruments Act governs federal regulations and these instruments are "made in the exercise of a legislative power conferred by or under an Act of Parliament and for the contravention of which a penalty, fine or imprisonment is prescribed." For the paints and coatings sector there are a number of Acts of Parliament that drive regulations, most notably the Canadian Environmental Protection Act (CEPA). CEPA controls such things as chemical management, the use of toxic substances, pollution prevention plans, hazardous waste and various enforcement and compliance measures. Environment Canada has close to 20 Acts of Parliament and there are more than 60 regulations flowing from CEPA alone. A number of them impact the coatings sector, such as the VOC regulations for architectural coatings for more than 50 categories of coatings and a regulation for automotive refinishing products as well, both implemented in 2009.

The Ministry makes regulations responsible for a governing statute, which in turn produces a draft regulation that is reviewed by the Clerk of the Privy Council (the most senior non-elected official in Government) in consultation with the Minister of Justice. The proposed regulations are published in the Canada Gazette

- Protect and advance the public interest in health, safety, and security, the quality of the environment, and the social and economic well-being of Canadians.

Part I along with a Regulatory Impact Analysis Statement outlining the various impacts of regulations including those on industry. At this stage it is open for public comment. This is the stage at which opportunity exists for industry associations, non-governmental organizations and the public in general to make their views known.

More recently the Government of Canada committed to protecting and advancing the public interest by "working with Canadians and other governments to ensure that its regulatory activities result in the greatest overall benefit to current and future generations of Canadians." It realized the overwhelming drag regulations can have on people and the economy and issued a Cabinet Directive on Regulatory Management, which stipulates that government must:

- Protect and advance the public interest in health, safety, and security, the quality of the environment, and the social and economic well-being of Canadians;
- Advance the efficiency and effectiveness of regulation by ascertaining that the benefits of regulation justify the costs, by focusing human and financial resources where they can do the most good;
- Make decisions based on evidence and on the best available knowledge and science in Canada and worldwide;
- Promote a fair and competitive market economy that encourages entrepreneurship, investment, and innovation;

- Monitor and control the administrative burden (i.e., red tape) of regulations on business;
- Create accessible, understandable, and responsive regulation through engagement, transparency, accountability, and public scrutiny; and
- Require timeliness, policy coherence, and minimal duplication throughout the regulatory process by consulting across the federal government, with other governments and jurisdictions in Canada and abroad, and with businesses and Canadians.

Given the foregoing, it is incumbent on those involved in regulatory development – like associations - to remind officials regulating industry of the standard to which they must perform and hope to achieve.

It should be noted at this juncture that CPCA is very active on regulatory matters well before the official consultation stage and is involved in 'pre-consultation' meetings with government regularly. This recognizes the fact that if a regulation has a potential impact on a sector it must be clearly defined before it is open to wider consultation with others. For this purpose, CPCA has a sector-specific Paint and Coatings Working Group that meets with federal departments extensively throughout the year, ensuring industry's views are represented at the table well in advance of the formal consultations. This sector approach has been lauded by government for the proactive manner in which consultations have been conducted. These have led to positive returns for the paints and coatings industry in Canada.

During the formal consultation period, the sector develops comprehensive and

formal submissions on specific regulations taking into account the concerns of industry. CPCA has just made two extensive formal submissions, one on the proposed Regulations Limiting the VOC Concentrations in Certain Products and the Proposed Code of Practice for MEKO (2-Butanone Oxime Associated with the Interior Application of Consumer Alkyd Paint and Coating Products). These submissions will ensure that officials gathering information fully understand the regulatory impact from both a business and science-based perspective. This process also includes the need for alignment or harmonization with other countries, especially the United States. Once the regulation is in final form - after the consultation period - a draft Order in Council is prepared for signature by the Governor General. Before it comes into force the regulation must be registered by the Clerk of the Privy Council and published in Part II of the Canada Gazette, as required by the Statutory Instruments Act.

definitive action plan between Canada and the United States to accelerate the legitimate flow of people, goods and services. The 'trusted traders' program has made secure border processes more efficient. The private sector, including suppliers and distributors of coatings materials, provided government with data about its supply chain in exchange for expedited clearance across the border. This has benefited large enterprises as well as small and medium sized enterprises. This initiative was a precursor to the two others that followed, which address regulatory development in Canada more specifically.

**REGULATORY COOPERATION COUNCIL**

Early in 2011, Canada and the United States announced the creation of the Regulatory Cooperation Council. When the initiative was announced the President of the United States drew the link between Canada and small business, "which create most of the new jobs here in America. And when they look to export, typically, Cana-

nized system for classification and labeling of chemicals (workplace hazards), nanotechnology, manufacturing sector competitiveness, regulatory efficiency – to name a few.

Creating more openness at the land border for legitimate travel and trade will allow for the free flow of goods and services between Canada and the United States. This in turn creates immense economic benefits for both countries, benefits Canada will need to secure trade with our largest trading partner. This is now more important than ever, as Canada's trade with the U.S. has plummeted since 2000, when exports to the U.S. were 86 percent of total trade, while today they are less than 75 percent. The government is taking these measures to ensure the impact of regulations do not further erode Canada's ability to do business with the United States.

**RED TAPE REDUCTION**

Early in 2012, the Government of Canada made cutting red tape a key priority and launched a regulatory reform package that is among the most ambitious of its kind today. The Red Tape Reduction Action Plan, the product of business community input to a year-long commission, not only targets specific irritants to businesses, but "the systemic barriers that unnecessarily frustrate and burden Canadian business with additional delays, costs and bureaucracy."

The President of the Treasury Board, Tony Clement, noted that, "The systemic reforms contained in the Action Plan are game-changers for doing business in Canada." He went on to state that, "Government regulation must and will continue to protect the health, safety and environment of all Canadians. But we must meet this imperative in ways that free business from unnecessary and frustrating red tape. The Red Tape Reduction Action Plan is a major step forward in striking that fine balance."

The federal government introduced six fundamental, systemic reforms supported by 90 department-specific changes; common sense solutions to problems identified by businesses in areas ranging from tax and payroll, to labour, transport and trade. The vast majority of these changes will be implemented over the next three years. These include the following:

- a 'one-for-one' rule requiring regulators to offset new administrative burden costs imposed on business with equal reductions in administrative burden from the stock of existing regulations.
- removing a regulation when a new one increases administrative burden costs on business.
- a 'small business lens' will be used to ensure regulators take into account the impact regulations have on small

business. This assessment will include the publication of a 20-point checklist that drives efforts to minimize burden on small business, avoidance of bureaucratic duplication and the communication of regulatory requirements in clear, plain language.

- the publication of departmental 'forward plans', which will highlight upcoming regulatory changes over a 24-month period, providing businesses with critical predictability.
- creation of 'service standards' that will set targets for the timely issuance of high volume licenses, certifications and permits. Regulators will also establish a feedback mechanism for business users in these areas.
- an 'annual scorecard' that will report publicly on implementation of systemic reforms, particularly the One-for-One Rule, Small Business Lens and Service Standards.

This approach is drastically changing the way officials are handling regulatory development. All departments are in the process of developing metrics to ensure they comply with the red tape reduction action plan.

As part of this initiative Environment Canada, as one of the government's most active regulators, embarked on a continual improvement initiative "to strengthen the processes by which the Department selects, develops and implements regulatory instruments, with the objective of operating as a World Class Regulator." In 2012, Environment Canada conducted an internal assessment of its regulatory activities against five 'world class regulator' criteria: evidence-based decision making, effectiveness, efficiency, transparency and adaptability. A report of its findings was produced and an action plan has been put in place to address deficiencies.

**CONCLUSION**

It is clear that governments have begun to recognize that regulations can be a burden to industry and that there must be more vigilance in decisions to regulate. When a decision is made to regulate it must be done with minimal negative impacts on the economy as well as preserving the laudable goals of regulation to protect the health, safety and environment. More importantly, the government is serious about it when it legislates red tape reduction in the regulatory process. Canadian industry looks forward to a more effective and efficient regulatory environment as the red tape begins to lessen. It will never disappear.

Gary LeRoux is the president of the Canadian Paint and Coatings Association headquartered in Ottawa, ON.

• the publication of departmental 'forward plans', which will highlight upcoming regulatory changes over a 24-month period, providing businesses with critical predictability.

**CANADIAN REGULATORY WORLD: EVOLVING FOR THE BETTER**

The forgoing outlines the regulatory process that has been in place since Confederation. Over the past 5-8 years there have been a number of advancements in the way regulations are made in Ottawa with the creation of the Beyond the Border Initiative, the Regulatory Cooperation Council and the Red Tape Reduction Action Plan. These developments were precipitated by the nature of globalization with increasing mergers and acquisitions in all sectors, especially paints and coatings; the economic downturn heightening the awareness of the impact of regulations on the economy; the increasing demand for closer ties with other countries related to trade and commerce (given that 40 percent of Canada's GDP depends on trade); and the fact that 74 percent of Canada's trade is with the United States. It should also be noted that 40 States have Canada as their number one trading partner.

The first initiative, Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness, established a long-term partnership and a

da is one of the most likely places they are to start getting a foothold in the global economy." He went on to say that, "we are going to strike a better balance with sensible regulations that unleash trade and job creation, while still protecting public health and safety ... our two nations are going to be going further, streamlining, eliminating and coordinating regulations, slashing red tape." This sentiment further supports the main precepts of Canada's Red Tape Reduction Action Plan, which seeks to reduce the administrative burden via a 'small business lens' with respect to regulations.

Canada's Prime Minister echoed the sentiments of the US President saying, "every rule needs a reason. Where no adequate reason exists for a rule or standard and that rule hinders us from doing business on both sides of the border, then that rule needs to be reexamined." When submitting comments on proposed regulations, we often remind the government of several of the RCC's 29 specific initiatives for greater cooperation such as: workplace chemicals, the alignment of dangerous means of containment for motor vehicle safety standards, globally harmo-

# Oven and Curing Technology

There are currently several trends in the world of ovens and curing in industrial finishing. Jeff Thomas of Jena Industries, Inc. says, "Powder manufacturers are coming out with new powders that offer lower and faster curing cycles than have been available previously." He says, "Innovative pre-treatment chemistries offer similar results. Jena has a customer that switched their pre-treatment process out and was able to lower their drying temperature by approximately 40° F while cutting the drying time by approximately 30 per cent."

Thomas adds, "Innovative convection designs are allowing for smaller heating systems to be used (750,000 BTU vs. 1,000,000 BTU or larger heating systems), smaller fans and motors (less electrical costs) without risking equipment performance." He adds, "Use of infrared ovens is increasing on a stand-alone basis as well as being used for pre-heat of substrates in both drying and curing applications. Innovative controls in ovens systems allow for greatly improved process controls, improved cycling, improved overall finished product quality (product curing recipes, product drying recipes for example)."

Thomas explains, "In order to truly look out for end users best interests, some oven suppliers are taking a new approach in that they are dealing directly with paint/powder/ top coat/pre-treatment suppliers in the early stages of projects in order to ensure the end user is able to have their oven in optimal operation right out of the gate vs. waiting until the equipment is in place and working with the respective suppliers at that time. As an example part testing in early stages is a great example of this." Thomas says it is good to get the topcoat supplier in contact with the equipment supplier and have them partner to ensure the end user has a quality oven system that provides optimum results.

"Heat recovery systems are making great inroads as the cost of source fuels continues to increase," he adds.

Jena Industries provides custom designed industrial equipment and chemical process solutions.

Some features of their ovens include:

1. Designed for optimal operating cost and maintenance efficiency
2. Lower capital investment
3. Smaller fans & motors
4. Reach set temperatures faster
5. Fast assembly time
6. Easily added onto/enlarged without changes to heating system
7. Batch and in-line
8. All fuel types
9. Convection & infrared (as well as combination of both)



Photos courtesy of Jena Industries.

10. High density insulation and 6" panels
11. Extremely uniform heat distribution and very rapid substrate heating

Grieve Corporation has a gas-fired 1000°F cabinet oven (No. 887), currently used for curing metal coatings onto parts. The unit's workspace dimensions measure 38"W x 38"D x 38"H. 175,000 BTU/HR installed in a modulating natural gas burner provide heat, while a 2,000 CFM, 2-HP stainless steel recirculating blower furnishes a horizontal airflow across the workload.

This cabinet oven features an aluminumized steel exterior, Type 304, 2B finish stainless steel interior, plus inner and

outer door gaskets which seal against the door plug and the front face of the oven.



Grieve gas-fired 1000 degree F oven.

No. 887 has 8" thick insulated oven walls, consisting of 2" of 1900°F block and 6" of 10 lb/cf density rockwool insulation.

All safety equipment is onboard as required by IRI, FM and NFPA Standard 86 for gas-heated equipment, including a 325 CFM, 1/3-HP powered forced exhauster.

A digital indicating temperature controller is also provided.

*There are several products on the market that meet every oven and curing need.*

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continued from front cover

local and overseas manufacturing to deliver something that nobody else can – a moderately priced, high quality bicycle that’s custom painted and assembled just the way you like it!”

Wood says, “Most other bicycles on the market are available in one, two, maybe three colours at most. Each colour generally has slightly different specifications,

introducing all sorts of compromises. We have 14 colours, and we paint and assemble every bicycle to order, so there are no compromises.”

Gallant has about 9000 square feet in a unique industrial space that is very close to downtown Toronto. Most of their employees ride their bikes to work.

“One day we’ll outgrow this space, but it’s not on the radar yet,” says Wood. “For

our small start-up company, this space gives us significant room to grow.”

**THE COATING**

Jason Wood took the two-day “Powder Coating 101” workshop offered by the Powder Coating Institute and met Janet Piergiovanni from Protech. The colour options and formulations met their needs.

“Janet was an invaluable resource for a couple of guys starting a powder coating business without knowing much about what we were getting into,” says Wood.

The spray gun they use is a “Colo”, a Chinese powder coating gun company.

“For the price, we figured it was worth a try,” says Wood. “It’s working great. One day we’ll compare it with one of the ‘big 3’.”

**PRETREATMENT**

“When we first started looking into doing our own powder coating, pre-treatment was the last thing on our minds,” says Wood. “We quickly realized that this rather dull topic was not only the most important, but the most complicated. We were overwhelmed. The Enviro-Prep system was appealing because we wouldn’t have to worry about waste-handling and even more importantly, it’s a simple, single-stage process.”

Gallant worked with Jeff Thomas of Jena Industries, an industrial equipment and chemical process solutions provider. Jena provides custom designed industrial

equipment and chemical process solutions with single stage pre-treatment machines, aqueous/multi-stage pre-treatment machines, chemicals, conveyor systems, ovens, powder booths, filtration systems, value added services and add-on and after-market products and services.

Thomas looked into various pre-treatment options that would work with carbon steel, aluminium and other metals in an easy to use process. Many processes required multiple stages that had to be operated in a manner to suit the metals being processed.

A process example might include:

- Alkaline cleaner 60 seconds at 120° F
- Ambient rinse at 30 seconds
- Conversion coating 60 seconds at ambient
- Ambient rinse at 30 seconds
- Ambient non-chrome sealer at 15-30 seconds

Aqueous systems required multiple process tanks, heat source utilities, water utilities, drain/sewer utilities and daily monitoring and maintenance.

Thomas says, “Capital investment for an aqueous system quickly became very expensive and took up a great amount of available facility footprint.”

Gallant heard about the Enviro-Prep single stage process and contacted Jena Industries. The Enviro-Prep process can be used in both dip and spray applications.

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Thomas reviewed this single stage process, sent technical information and arranged for a site visit to a division of A-1 Fabrication a leading custom equipment manufacturer to process in their Enviro-Prep system.

They ran parts in the Enviro-Prep process, powder coated and cured. "The parts turned out great," says Thomas.

Benefits contributing to the implementation decision included:

- Lower equipment capital investment
- Far less maintenance
- No daily monitoring
- No gas/water/sewer/waste treatment concerns
- Environmental benefits
- Works on any type of metal substrate with no need to have to schedule production to suit pre-treatment processes
- Only one process bath vs. multiple
- Less footprint than aqueous system

The process is being used by industry leaders like Ingersoll-Rand, GE Appliance & Lighting, Knoll, Mestek, Radio Frequency Systems and many others.

"Larger companies like these would not implement the Enviro-Prep system unless it met all of their corporate financial/operational/environmental objectives and Gallant Bicycles wanted to be in the same league," says Thomas.

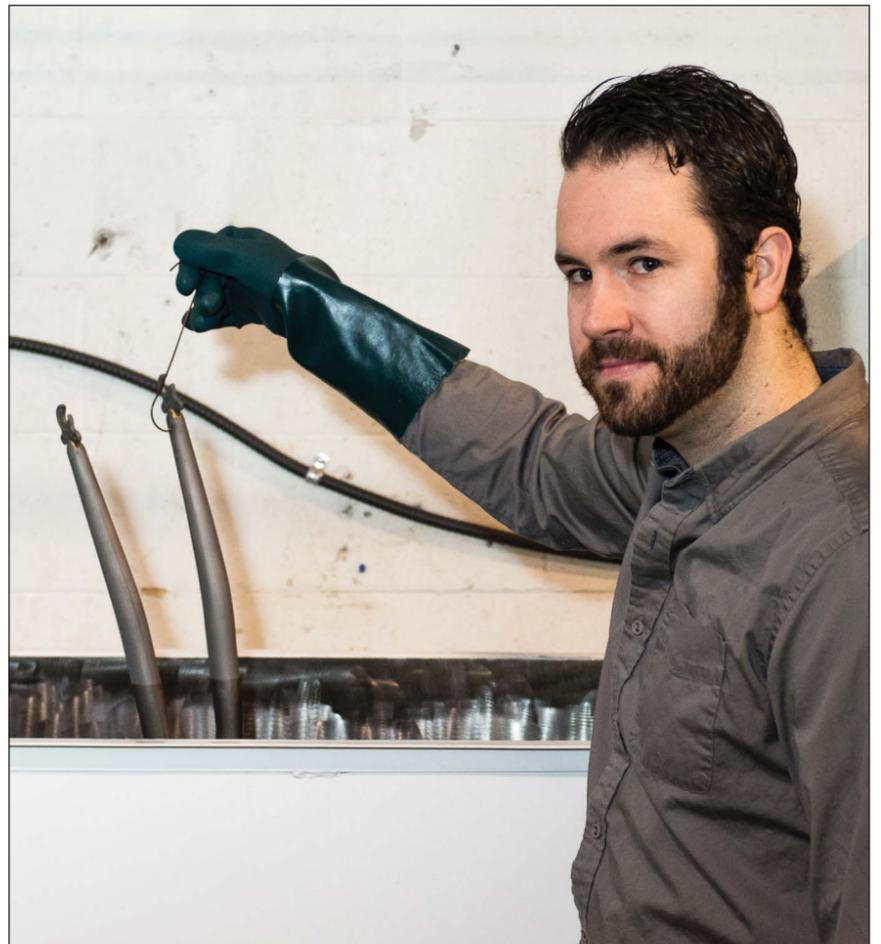
Gallant worked with A-1 Fabrication and Jena Industries on the design and manufacture of the pre-treatment system.

"We were very happy with the customer service provided by Jena Industries," says Wood. "They left no stone unturned as to ensure the proper equipment and application process was imple-

mented into our system." A true "One Stop Shop" as together A-1 and Jena were able to address all of Gallant's pre-treatment equipment and chemical requirements.

The booth and oven were provided by Reliant Finishing Systems via BoothsAndOvens.com. "Why? We're young guys. We research and we buy things online," says Wood. "BoothsAndOvens.com was the only web site we could find that had a suitable package listed on their web site, and a price next to it."

*Gallant is opening their retail store at 678 Bloor Street West, Toronto in April 2013. They also sell online at [gallantbicycles.com](http://gallantbicycles.com)*



Tony Mammoliti, from new custom urban bicycle manufacturer Gallant Bicycles dips a fork in the single phase wash and pretreatment.



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## RadTech's UV.EB WEST 2013 in Redondo Beach, California A Success

Organizers say attendance up 50 per cent at uv.eb WEST in Redondo Beach, CA, February 26-27, 2013. Presentations at the event covered an Overview of Innovations in UV & EB Curing Technology and much more.

**The next RadTech conferences:**

- UV.EB EAST 2013, October 1-2, 2013 at the Sheraton Hotel & Conference Center at Syracuse University Syracuse, NY
- RadTech 2014, UV & EB Technology Expo & Conference May 12-14, 2014 Hyatt Regency O'Hare Rosemont, IL [www.radtech.org](http://www.radtech.org)



CFCM was there! Photos by Pete Wilkinson



Laurie Morris, Yasmin Sayed-Sweet, Karen Stone and Mario Karshalev, Alberdingk Boley.



Bob Bonham, H&S Autoshot.



Ed McGhee and John Palazzo, Nordson Corporation.



Victor Lam and Rich Edgar, Byk.



Marvin Ruffin and Carey Ratz, Excelitas



Michael Knoblauch, Keyland Polymer.



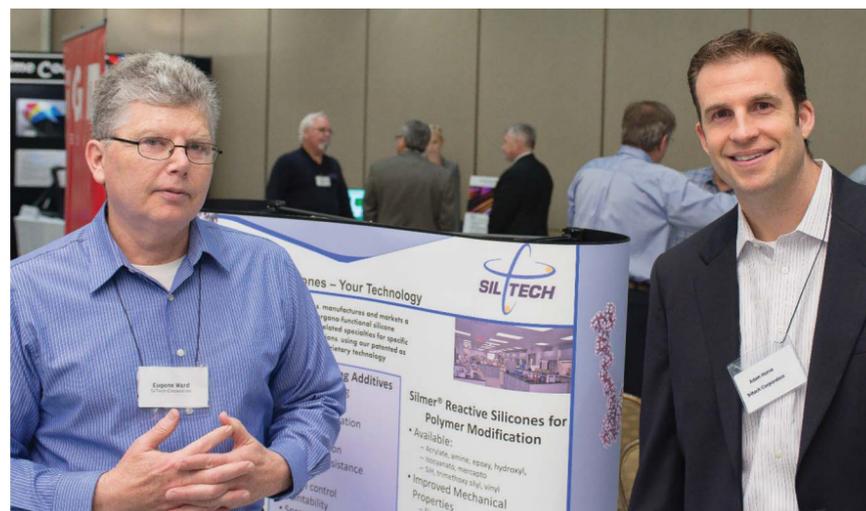
Robert O'Toole, Paul Elias, H.W. Kim, Kork Korchynsky and Soohan Lee, Miwon Specialty Chemicals.



Mark Clark, Nanophase.



Jim Zawicki, Sartomer.



Eugene Ward and Adam Horne, Siltech.



Derek Dennis and Zoran Pavlic, Cytec.



Carmen Fourar, Chemroy Canada.



## FINALLY...

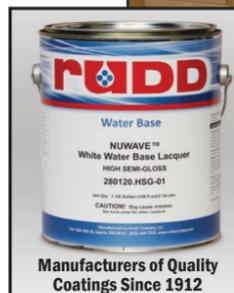
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# Going Waterborne with UV with Wood Floor Finishes

The biggest trend currently when it comes to wood floor finishes is water borne products. However, there have also been advancements in UV and oil finishes for wood floors.

Valspar Wood Coatings has the zenith waterborne system. It is easy to apply. From high-end custom musical instruments to hockey sticks, Valspar protects and enhances a wide range of diverse products. Their technology and dedicated focus to ensuring customer success has helped them become the leader across many markets and segments. Founded in 1806, Valspar produced the first wood varnish sold in North America. Today, Valspar offers the broadest technology portfolio in the wood coatings industry.

Flash UV Coatings is a new option

when it comes to finishing wood floors. Refinishing Wood Floors with Ultra Violet reduces downtime. Benefits Include: instant cure – eliminate downtime; experienced professional field applicator; eliminate exposure to harmful VOCs and odors; reduce maintenance and repair costs; green product – no curing cross link chemicals and an easily maintainable surface. Flash UV has advantages over conventional coating methods in that the hours until light traffic allowed is zero with Flash UV and 24 to 48 hours with Water-Borne PU and Oil Modified PU. Days until heavy traffic or rug replacement is allowed is zero with Flash UV and 14 with Water borne PU and 28 with Oil Modified PU. Other features include: Volatile Organic Compound (VOC) levels (g/l

<50 for Flash UV, 275-380 for Water borne and 450 to 850 for Oil and flash-point degrees F: >200 for Flash, >200 for Water borne and 110 for Oil. Flash UV was also found to have better hardness, solvent resistance and chemical resistance compared to water and oil based finishes. It is available in different substrates and sheens.

When it comes to wood flooring finishes, CanLak offers MAXICURE UV which the company describes as “the latest technology in wood coatings.” This selection of products with an acrylate base dry instantly when exposed to ultra-violet rays, meeting the requirements of the industry for high quality and accelerated production. MAXICURE UV products are available in three versions : UV 100 per cent solids, UV

oil based and UV water based. The most popular uses for these products include pre-varnished hardwood floors, furniture and kitchen cabinets, musical instruments, mouldings and many others. Properties include: fast drying (instantaneous when exposed to UV rays); excellent resistance to chemicals; good resistance to scratching and abrasion; environmentally friendly product and does not contain formaldehyde.

Akzo Nobel has a new UV Oil for pre-finished hardwood floors. Denis Berthiaume, General Manager, says, “In order to respond to the market trends, the pre-varnished wood-flooring industry needed to broaden its range of products offered to consumers.” The growing popularity of oiled based finishes is more in demand putting pressure on pre-finished wood-flooring manufacturers.

“In 2012, we have worked in collaboration with many of our pre-varnished wood-flooring customers in order to meet the growing market interest towards of oil finishes,” says Berthiaume.

“Expectations from our customers were well know and we started to develop a brand new oil base line for the pre-varnished wood-flooring industry. “ This new technology includes a combination of resins and acrylates natural oils base. The products can be used similar to traditional UV finishes, which have contributed to growth in their interest.

“The result and finished look is comparable to the natural oil finishes that are currently utilised in the domestic market,” says Berthiaume. He says the main challenge to meet the market requirements for this type of product was to obtain a factory finish that could be refinished on end user floors for single strip, small and or entire areas. This feature shows that it is possible to maintain, refresh and repair its floor with the conventional natural oil based products while maintaining a green and environmentally friendly approach.

AkzoNobel UV oils are available in a range of colors and can be applied on all North American woods. They also offer a full range of products based on 100 per cent natural oil for the maintenance of the floor.

Wood Finish manufacturers are meeting the needs of today’s marketplace with ongoing research and development and new products.

*Editor’s Note: Companies mentioned in this article can be reached at:*

- [www.valsparWOOD.com](http://www.valsparWOOD.com)
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# Transfer Efficiency is Key

When asking manufacturers of Manual Liquid Paint Spray Guns what their customers ask for most in their guns, the most common answer is Transfer Efficiency. But there are several other requests that manufacturers must address.

Mark Hebbeler, Marketing and Sales Director of ANEST IWATA USA, Inc. says, "Inevitably customers ask for the highest transfer efficient guns. I explain a spray gun's transfer efficiency depends on the painter since each person is different in application and no two people are robots." Hebbeler adds, "The one item that I can show them is the material reduction that an Anest Iwata spray gun will help them achieve over the course of a year. The one item that sets Anest Iwata spray guns above all others is our Patented Genuine LV Technology that has the highest atomization efficiency of any spray gun on the market today."

"Our Patented Genuine LV Technology nozzle design combines a higher fluid delivery that facilitates a faster, smoother application. The result is a higher transfer efficiency rate resulting in greater material savings," says Hebbeler.

Jim Bunnell of Can-Am Engineered Products, Inc. says, "Transfer efficiency is almost always something a customer wants, but is afraid to 'demand' because many wrongly assume it always involves other compromises. Once it is demonstrated that you can maintain the same speed and finish quality while greatly reducing paint consumption most customers get very excited."

"We have developed a new turbine-powered hand spray gun with a quickly removable plastic head that can be removed as a single unit containing the entire fluid and air passageways along with the nozzle and air cap," says Bunnell. "This offers several advantages including easier cleanup and the ability to quickly swap gun heads for material changes on spray lines that use several different colors/materials and don't want to buy multiple guns or spend the time cleaning between changes. It also greatly reduces the chances that you'll have to buy a whole new gun if it sustains damage. Finally, the feel of the trigger has been improved and features a very light pull."

S.T. Rajan, Vice President, EXEL North America, Inc. explains, "Whenever we meet our existing customers or prospects, the following are always discussed:

- A) Ergonomics:  
How does your spray gun compare to others by way of weight, balance and

easy to handle and operate.

- B) Atomization:  
What is the level of atomization. Everyone today depending on coatings demand a high quality finish with uniform spray.
- C) The availability of different air caps and tips or needles and nozzles with air caps:  
Larger the selection helps the operators to get to the finish they desire on different substrates. These combinations could vary with water based coatings also.
- D) Water based coatings:  
The material of construction in contact with the coatings should always

be made of the right grade of stainless steel. Some areas these need to be hardened depending on applications. With air assisted airless technology there are pre atomizing tips which break these heavier water based material better hence they need to be recommended with these type of coatings.

- E) In line filters with the guns:  
These are a must to avoid any blockage at the tip or nozzle. The mesh size could vary depending on the type of coatings applied.
- F) Swivel fittings:  
These fittings make it easier for the operators when spraying who are in

the booth for eight hours. There is no twisting or turning of hoses hence helps when doing the inside of cabinets and large surfaces.

- G) Ease of maintenance:  
The operator should be in a position to trouble shoot without having to bother their maintenance department. The assembly instructions should be very clear, the parts breakdown should be easily understood, the right tools should be supplied with the applicator and training needs to be imparted by the suppliers when setting up the spray guns. Blow up of the guns should be on the wall with the do's and don'ts clearly spelt out.

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Rebuilt kits should be available one for the seals and the other for rebuilding the gun. These kits helps in reducing down time when in production."

The Xcite Airmix Manual Spraygun delivers a very high transfer efficiency of 86 per cent to achieve minimal overspray.

Airmix has become a standard in the industry by providing better atomization, low paint particle velocities, low air consumption and extremely high transfer efficiencies.

Kremlin Rexson provides the Xtra fine tips that are excellent for spraying waterborne materials while delivering an extra fine finish.

Linda F Hester, Marketing Coordinator for **Finishing Brands** says, "Our electrostatic customers are expecting the same results as most traditional spray equipment users, higher trans-



The Xcite Airmix Manual Spraygun.

fer efficiency and superior atomization. The Ransburg electrostatic gun family offers that solution."

Wendy Hartly, **Graco, Inc.**, Worldwide Product Marketing Manager says, "As customers continue to demand spray guns that reduce their operating expenses, manufacturers are burdened with building products that will help them achieve these goals."

She adds, "To better provide customers with high quality spray performance, improved transfer efficiency and reduced air usage, manufacturers are making enhancements to the aircaps, nozzles and tips that are making a big impact on cost reduction."

"And when it comes to improving employee wellness, manufacturers are investing in spray guns that are lightweight and ergonomic," says Hartly. "These



## Multiple Solutions

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Lemmer's A-910SS

lighter and more comfortable spray guns are proving to be very effective in reducing muscle strain and improving employee well-being – especially for those spraying 8 hours a day, or more.

Graco's Pro Xp40 kV Booster gun meets all of these cost reduction areas. The kV Booster gun is one of the smallest, lightest weight electrostatic guns on the market. Because the 40 kV gun delivers the transfer efficiency of a 60 kV electrostatic gun, its transfer efficiency is higher than other 40 kV electrostatic guns in its class."

Hartly explains, "As the technology evolves, customers are asking for more information about their work environment. And they want it readily accessible at any time, day or night. This also applies to spray guns. Manufacturers want to know their ideal spray parameters, and be

able to easily adjust their spray guns accordingly."

"Finishing materials have a wide variety of properties that can require different parameters for spraying," says Hartly. "When spraying electrostatic spray guns, one factor that effects spray performance is kV (kilovolts). In order to spray a high quality finish and optimize transfer efficiency with electrostatics, the operator needs to be able to control the amount of kV the electrostatic spray gun delivers."

"With the Graco Pro Xp electrostatic gun, this can be achieved two ways," says Hartly. "First, the operator can change from spraying at full voltage of the gun to spraying at a lower voltage. With a flip of a knob, the operator can adjust quickly between high or low kV. Second, the operator can control the low kV setting. With

a push of a button, the low kV setting can be adjusted in 5 kV increments. This allows for quick change of electrostatic charge to optimize spraying parameters. In addition to controlling kV, it is important to get feedback on spraying parameters. The Pro Xp electrostatic gun has the ability to assist with trouble shooting with

a digital display of actual voltage, current and hertz. This diagnostic screen eliminates guesswork on spraying parameters by providing detailed information."

Thomas Lemmer of **Lemmer Spray Systems Ltd.** says customers are looking for, "A gun compatible with waterbase fine fin-

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Nordson's new line of Trilogy non-electrostatic spray guns.

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The high efficiency SATAjet 3000 K.

ish coatings. Good value, as many of the guns in this market segment are quite expensive.

Lemmer's A-910SS addresses this market requirement.

The A-910 Stainless Steel conventional spray gun from Lemmer offers the fit and finish of a premium waterbase gun at a value oriented price.

All parts of the fluid passage on the A-910SS are stainless steel. The suction version features the 3M PPS fluid container, which is compatible with both water and solvent borne products. This gun can work on any angle without spray flutter, and the disposable liners make cleanup fast and easy. The A-910SS is also available in a pressure feed version.

**Nordson Canada Limited** offers Trilogy Non-Electrostatic Spray Guns.

Nordson's new line of Trilogy non-electrostatic spray guns is comprehensive, encompassing air assist airless, air spray and low-volume/low pressure technologies. These guns incorporate the latest in design technology, providing excellent spray quality, the durability to withstand harsh manufacturing environments and

ease of handling and maintenance. In addition, manual and automatic configurations are available, along with gravity-feed and pressure-feed versions. With more than 14 non-electrostatic gun options now available, complementing our existing Trilogy electrostatic line, Nordson can provide manufacturers with the widest range of spraying solutions.

**SATA Canada /Eurotech Spray Products Ltd.** say, "Customers need a high application process security, low maintenance requirements, long-term spare parts availability and individual solutions for their needs. This is all characterized by the SATA high efficiency pressure fed manual spray guns."

The high efficiency SATAjet 3000 K is designed for high material delivery over large surfaces. These versatile pressure fed spray guns have a large product offering with an extensive range of accessories for optimum results for almost any type of application. The finest material atomization and a large spray pattern leads to the best finishing results and a homogeneous paint application.



Wagner GM 5000 Electrostatic Gun.

**Wagner Industrial Solutions** offer the new GM 5000 Electrostatic Gun that combines the latest in advanced ergonomics with superior liquid spray technology for improved operator comfort and efficiency.

The primary features and advantages of the new GM 5000 include:

- Lightweight design with excellent balance, fingertip controls and a low-force trigger
- Improved wrap effect and higher transfer efficiency with the GM 5000's ultra-flexible electrode
- Quickly set spray recipes and voltage flow with on-the-gun panel controls
- Optimize your spray with unique air caps, nozzles and other accessories
- The GM 5000 series offers models for the majority of solvent or water-based paints/coatings



Walther Pilot Premium HVLP Plus.

Jorge Flores Marketing Coordinator & Customer Service, **WALTHER PILOT NORTH AMERICA** says, "Our customers are looking for a number of qualities in manual liquid paint spray guns that have eventually led them to our products. Top quality atomization and finishing appearance are usually the primary attributes. Durability is another extremely important quality as longer equipment cycle lives equate to financial savings and a longer, uninterrupted workflow. We have also been seeing a lot of calls for some type of material and energy savings. For a spray gun, this usually means higher transfer efficiencies and lower energy use. With everyone looking to cut costs and save on the bottom line, we have been taking a lot of orders for HVLP gun models with higher transfer efficiencies."

The **WALTHER PILOT Premium HVLP-Plus** is the company's most versatile and fully-featured spray gun. In direct response to consumer demand, **WALTHER PILOT** engineered a spray gun that delivers the best of all worlds. The HVLPPlus technology delivers material savings alongside dramatically improved atomiza-

tion characteristics over standard HVLP models. In addition, transfer efficiencies of up to 88 per cent have been documented by an independent testing facility. "With the industry standard for HVLP being 65 per cent, it is easy to see that the Pilot Premium is in the upper echelon when it comes to HVLP material savings and spray performance," says Flores.

Besides the popular request among customers for transfer efficiency in their manual liquid paint spray guns, there are also several other challenges that manufacturers are rising to meet.

*Editor's Note: Companies mentioned in this article can be reached at:*  
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# Passing the Test

When it comes to Plating and Anodizing there are several parts of the process that require measurement.

## ANALYSIS OF THE METALLIC CONTENT OF PLATING SOLUTIONS

In order to apply coatings at a well-defined plating rate and with a well-defined composition, electro-plating companies must monitor and control the formulation of their plating baths very closely. For example, the metallic coatings (like AuCuCd, AuCuIn, RhRu or others) especially beloved in the jewelry industry must be applied absolutely homogeneously over the entire surface to ensure an even color finish.

The quality of metallic coatings depends heavily on the formulation of the plating bath, which consequently needs to be monitored. Compared with other methods, XRF (x-ray fluorescence) analysis of such solutions is straightforward: sample preparation is quick, and the only consumables required are small pieces of plastic foil, as opposed to other analytical methods where gases (Ar) or purified water are used.

### Optional Solution Analysis Cell



RS538 X-RAY XDAL.  
Photo courtesy of Fischer Technology



Electrolyte Solution analysis.  
Photo courtesy of Fischer Technology

All the FISCHER XRF instruments, by Fischer Technology, Inc. can be easily outfitted for analyzing plating solutions by mounting the optional solution analysis cell.

First, the specialized cell is filled with the solution to be analyzed, then it is covered with a thin but robust Mylar foil and sealed with a plastic ring – all part of the

solution analysis kit. Different cells are available which vary only in the material of the cell's base from which they are made. Choosing the correct material can considerably improve the measurement performance. Matrix effects (Cl, SO<sub>4</sub>, CN,...) in the solution can be corrected via the absorption of fluorescence radiation of the cell's base material (e.g. Mo or Ni).

Due to the easy handling, bath analysis can be carried out directly during production without specially qualified personnel being required. Measurement results are available within minutes, which provides short reaction times regarding changing the bath. In addition the cells are resistant against chemicals and can be re-used. There are no further operational costs involved.

FISCHER's high-precision, fast and user-friendly XRF measurement systems are perfect for analyzing the metallic content of plating solutions. Equipped with the solution analysis cell they provide great time savings compared to other analytical methods.

[www.fischer-technology.com](http://www.fischer-technology.com)

## MEASUREMENT CHALLENGES

To efficiently control the thickness of the thin coatings of an anodizing process, an accurate non-destructive means of measurement is required.

A secondary challenge is the measurement of anodizing in small or hard-to-reach areas.

### Measurement of Anodizing on Aluminum

DeFelsko manufactures a hand-held, non-destructive coating thickness gage that is ideal for measuring the thickness of anodizing on aluminum.



### Coating Thickness Measurement Solutions

The PosiTector 6000 "N" series of eddy current gages are ideal for non-destructive measurement of nonconductive coatings on non-ferrous substrates. The PosiTector NAS probe is specifically designed for high resolution measurement of anodizing on aluminum. Though capable of measuring up to 625 μm (25 mils), the NAS probe is most accurate and provides its highest resolution under 100

μm (4 mils) which is within the expected range of most anodizing applications.

When measuring small or hard-to-reach areas, the PosiTector N Microprobes are an ideal measurement alternative. With probe tips of either 0°, 45° or 90° readings can be taken in deep holes, on small ledges or on inside diameters. When a fixture or quick release adapter is used, N microprobes have identical specifications as the NAS probes.

The NEW PosiTector 6000 FHXS Xtreme coating thickness gage measures coatings up to 400 mils (10,000 microns) thick in rugged environments.

Designed with an alumina wear face and braided steel cable, the PosiTector 6000 FHXS is ideal for measuring on hot or rough surfaces.

Tough New Features:

- Braided stainless steel cable - kink-proof, wear and cut resistant
- Alumina wear face for extended performance on rough substrates
- Ability to measure on hot surfaces up to 250°C (500°F)

- Robust probe large enough to use with gloves

The PosiTector DFT Coating Thickness Gage measures coatings on ALL metals. It is the economical choice that retains the uncompromising quality of DeFelsko coating thickness and inspection instruments.

Important new features include:

- Displays a moving average for up to the last 10 measurements
- 1 Point Calibration Adjustment feature for adjusting to a known thickness

Available as either Ferrous or Combo, the PosiTector DFT coating thickness gage is ideal for powder coaters, paint applicators, inspectors and more.

*Ferrous* (DFT-F) measures on ferrous metals.

*Combo* (DFT-C) measures on all metals.

The PosiTector 6000 coating thickness gage is now smarter, faster and more powerful than ever before. Both Standard and Advanced models feature built-in memory, onscreen statistics, USB mass storage, and new Fast mode. Advanced models also include hi contrast reversible color LCD, Scan mode to store continuous readings, onscreen help, real time graphing, and more.

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# Oxidation, Patination or Antiquing

BY STEWART TYMCHUK

Oxidation is defined as the interaction between oxidation molecules and the different substances they may contact, such as metals (in this case).

We often use the words oxidation and rust interchangeably, but not all metals that interact with oxygen will disintegrate into rust. When iron is in contact with oxygen, a slow burning process is created that results in a loose brown substance we call “red” rust. In the case of aluminum, an invisible, durable protective aluminum oxide film is formed, often termed “white” rust. On the other hand, when oxidation occurs on copper, a brown-black layer of copper oxide is formed as well as, eventually, a greenish film we call, “copper oxide”. The metal itself is not weakened as in iron, but the surface develops a “patina”, which develops over years of exposure to air and water. A green layer of copper carbonate can often be seen on old copper constructions such as the Statue of Liberty.

The process of darkening metal to give it a more aged look is called oxidation, patination or antiquing. Brass is probably the most popular metal for antiquing, but not the only one. Antique brass is one of the most beautiful and timeless materials that is available today. The term, ‘antique brass’ does not, however, refer to a particular type of brass that has been aging for many years organically; the term actually refers to a process that is performed on existing pieces of pure brass to give it the look, or the illusion, of it being older than it really is. Often, the surface is enhanced by waxing, oiling, lacquering or clear coating.

These antique finishes can be deliberately added as part of the original design, not only to brass and copper, but to bronze, zinc, nickel, pewter, silver and tin, to name a few.

Copper reacts with hydrogen-sulfide and sulfide containing solutions, forming various copper sulfides on its surface. In sulfide containing solutions, copper will corrode. Copper is slowly dissolved in oxygen containing ammonia solutions, because ammonia forms water soluble complexes with copper. Copper reacts with the combination oxygen and hydrochloric acid to form a series of copper chlorides.

Artists and metalworkers often deliberately add patinas as part of the original design and decoration of art and furni-



ture, or to simulate antiquity in newly-made objects. A wide range of chemicals can give a variety of patinas, they are often used either for colour, texture, or both. Patination compositions vary with the reacted elements, and these will determine the colour of the patina. For copper alloys, such as bronze, exposure to chlorides leads to green, while sulfur compounds tend to brown. The basic palette for patinas on copper alloys includes chemicals like ammonium sulfide (blue-black), liver of sulfur (brown-black), cupric nitrate (blue-green) and ferric nitrate (yellow-brown). There is even reference that the French sculptor Auguste Rodin used to urinate over bronzes to create his finishes.

Decorative end use finishes that require antiquing include: furniture components, building hardware, hand tools, major appliances, plumbing fixtures, house wares, luggage hardware, wire goods and other articles.

## OXIDIZING THE SUBSTRATE

In its simplest form, application involves oxidizing the substrate by exposing the components with the oxidizing (antiquing) solution, rinsing the components to cease formation of the oxide, buffing or relieving the components to form the desired antique finish, followed by waxing, oiling, lacquering or clear coating “lock-in” the finish. By varying time and concentration, users can achieve multiple shades of color from light to dark. Tumbling, rubbing or relieving the

surface to highlight lettering, embossing or create contrast on designs, can create additional effects.

A full range of oxidation products and processes exist today to produce pleasing browns, chocolate browns, light browns, black and verdi-green on copper and copper alloys, as well as, blacks on pewter, tin, silver, nickel, zinc and steel.

Hot blackening of iron and steel can be done from generic mixtures of caustic soda, sodium nitrite, sodium nitrate, wetting agents and stabilizers. The result of the process is an attractive, but very thin, marginally corrosion resistant, dark black iron oxide finish, produced when parts are immersed in this alkaline aqueous salt solution operating at approximately 290oF. The reaction between the iron of the ferrous alloy and the hot oxide bath produces a magnetite (Fe<sub>3</sub>O<sub>4</sub>) on the actual surface of the part.

During hot blackening, colloidal iron compounds (e.g. hydroxide) are formed. This build-up of colloidal iron compounds, if not inhibited, produces superficial red, brown or green films, preventing uniform black coatings. Inhibitors, compatible with these high alkaline, very hot processes are formulated with these products to ensure a rich black coating is consistently produced.

Parts requiring black oxidizing often contain brazed or soldered joints. Copper, zinc and lead are contained in these materials and cause discolouration. Chemical “rectifiers” that react with these non-ferrous materials assure thorough blending

with the black oxide finish.

Black oxide finishes require a sealant of some type because the black finish itself has a porous crystal structure. The sealant is primarily responsible for the corrosion resistance. The underlying black coating acts as an absorbent base, holding the sealant in contact with the metal substrate. Typical sealants include waxes and oils. Ambient temperature products are also available, however, they are thinner coatings and much less robust.

## THE PROCESSES

Manufactures today are able to provide a complete line of blackening/antiquing processes for most metals, some examples are identified below:

Black oxide finishes on a variety of stainless steels, cast iron as well as mild steel low carbon steels.

Ranges of colours from jet black to light brown on copper and copper alloys and light grey to black on nickel.

Pronounced brown to chocolate brown color on copper alloys.

Ranges of colours from light brown, grey, purple and black/pewter on copper and copper alloys.

Decorative oxide finishes on pewter and tin.

Lighter Flemish and statuary bronzes on copper and copper alloys.

Ranges of colour tones from brown to purple to greyish black on copper alloys, white metal, tin-lead alloys and silver.

Natural Verdi or patina green colour

## Colour of Various Ions

Name	Formula	Color
Titanium (III)	Ti <sup>3+</sup>	Violet
Titanyl	TiO <sub>2</sub> <sup>+</sup>	None
Vanadium (II)	V <sup>2+</sup>	Lavender
Vanadium (III)	V <sup>3+</sup>	Dark grey/green
Vanadyl	VO <sub>2</sub> <sup>+</sup>	Blue
Pervanadyl	VO <sub>2</sub> <sup>+</sup>	Yellow
Chromium (III)	Cr <sup>3+</sup>	Blue-green
Chromate	CrO <sub>4</sub> <sup>2-</sup>	Colorless or Yellow(sometimes)
Dichromate	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	Orange
Manganese (II)	Mn <sup>2+</sup>	Light pink
Manganate (VII) (Permanganate)	MnO <sub>4</sub> <sup>-</sup>	Deep violet
Manganate (VI)	MnO <sub>4</sub> <sup>2-</sup>	Dark green
Manganate (V)	MnO <sub>4</sub> <sup>3-</sup>	Deep blue
Iron (II)	Fe <sup>2+</sup>	Light blue
Iron (III)	Fe <sup>3+</sup>	Yellow/brown
Cobalt (II)	Co <sup>2+</sup>	Light red
Cobalt-ammonium complex	Co(NH <sub>3</sub> ) <sub>6</sub> <sup>3+</sup>	Yellow/orange
Nickel (II)	Ni <sup>2+</sup>	Light green
Nickel-ammonium complex	Ni(NH <sub>3</sub> ) <sub>6</sub> <sup>2+</sup>	Lavender/blue
Copper (II)	Cu <sup>2+</sup>	Blue
Copper-ammonium complex	Cu(NH <sub>3</sub> ) <sub>4</sub> <sup>2+</sup>	Royal Blue
Tetrachloro-copper complex	CuCl <sub>4</sub> <sup>2-</sup>	Yellow/green
Zinc (II)	Zn <sup>2+</sup>	Bluish-white
Copper carbonate	CuCO <sub>3</sub>	Blue-green
Copper Acetate	Cu(CH <sub>3</sub> CO <sub>2</sub> ) <sub>2</sub>	Dark green
Copper II Oxide	CuO	Black
Copper I Oxide	Cu <sub>2</sub> O	Red
Copper Hydroxide	CuSO <sub>4</sub>	Pale blue

on copper alloys.

Hot or ambient immersion processes used to produce a black oxide finish on stainless or carbon steel surfaces.

### IN THE SOLUTION

The following are ingredients used as components in antiquing solution formulations to achieve various oxidation results:

**Phosphoric acid:** Forms copper phosphate. This salt is blue-green and is insoluble in water. Phosphoric acid also provides good cleaning and does not oxidize copper.

**Hydrochloric acid:** Copper reacts with the combination oxygen and hydrochloric acid to form a series of copper chlorides. Copper (II) Chloride is a light green substance and a mild oxidizing agent.

**Sulphuric acid:** Strong enough oxidizing agent to dissolve copper metal forming the blue copper sulphate salt. Also reacts with the zinc in brass and tin in bronze to release sulphur, which is a component to blacken copper.

**Nitric acid:** Very strong oxidizer, quickly dissolves copper and forms the dark blue salt copper nitrate.

**Potassium sulphide:** Source of sulphur to darken copper and silver.

**Sulfurated potash:** Synonyms include hepar sulfuris, liver of sulfur and sulfurated potassa. Used mainly in metalworking to form a patina, turning copper alloys brown or black.

**Ferric chloride:** Good etchant for copper alloys and is mild oxidising agent capable of oxidising copper (I) chloride to copper (II) chloride (colourless blue).

**Ferric nitrate:** Ferric nitrate solutions are used by jewelers and metalsmiths to etch silver and silver alloys.

**Ammonium hydroxide:** Forms water soluble copper complexes and also provides good cleaning ability.

**Ammonium chloride:** Source of ammonia and is a main ingredient in fluxes for tin and zinc.

**Copper sulphate:** Source of copper to form black copper oxide in the copper phosphate film.

**Copper nitrate:** Additional source of copper to form black copper oxide in the copper phosphate film.

**Calcium chloride:** Reduces the chemical attack on copper surface, allowing oxide film to form easier.

**Sodium chloride:** Helps clean copper surface, improves reaction rate.

**Sodium thiosulfate:** Decomposes into the sulphate ion which darkens copper.

**Lead acetate:** Will react with sulfide to form a grey precipitate.

**Oxalic acid:** Helps clean and deoxidize metals.

**Acetic acid:** Produce pigments useful in art, including white lead (lead carbonate) and verdigris, a green mixture of copper salts including copper (II) acetate.

**Zinc sulphate:** Helps set up colours. The resulting coordination complex of colour and ion is colloidal. This provides a deeper/darker oxide film. Excess zinc reacts with sulphuric acid to reveal more red from copper.

**Potassium permanganate:** Strong oxidizing agent which dissolves in water to give



intense purple solutions, the evaporation of which gives prismatic purplish-black glistening crystals. Potassium permanganate is one of the principal chemicals utilized in the film and television industries to "age" props and set dressings. Its oxidising effects create "hundred year old" or "ancient" looks on hessian cloth, ropes, timber and glass. It was used on props and sets in films such as "Troy", "300" and "Indiana Jones".

**Cupric acetate:** Copper acetate is often the primary component of verdigris, the blue-green substance that forms on copper during long exposures to atmospheric conditions. It was historically prepared in vineyards, since acetic acid is a by product of fermentation. Copper sheets were alternately layered with fermented grape skins and dregs left over from wine production and exposed to air. This would leave a blue substance on the outside of the sheet.

**Nickel Sulphate:** Highly soluble blue-coloured salt is a common source of Ni<sup>2+</sup> ions.

**Tellurium dioxide:** Forms similar com-

pounds to sulfur and selenium.

**Molybdenum trioxide:** Chief application is as an oxidation catalyst. The broad range of oxidation states of molybdenum is reflected in various molybdenum chlorides:

Molybdenum (II) chloride MoCl<sub>2</sub> (yellow solid)

Molybdenum (III) chloride MoCl<sub>3</sub> (dark red solid)

Molybdenum (IV) chloride MoCl<sub>4</sub> (black solid)

Molybdenum (V) chloride MoCl<sub>5</sub> (dark green solid)

Molybdenum (VI) chloride MoCl<sub>6</sub> (brown solid)

**Sodium molybdate dihydrate:** Useful as a source of molybdenum.

**Selenous Acid:** One use for selenious acid is the chemical darkening and patination of copper, brass and bronze, producing a rich dark brown color.

*Stewart Tymcbuk is the Technical Director and co-owner of Dynamix Inc., Markham, ON.*

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## Troy Introduces Advanced Preservatives & Additives

Troy Corporation has introduced Troysan Controlled Release (TCR) preservatives. TCR preservatives deliver protection at low use levels in a low volatile organic compound (VOC). These are Polyphase 636 & 920, for solvent-based decorative coatings and wood preservatives; and Polyphase 828 & 899, for exterior waterborne coating systems, offer broad-spectrum protection against fungi & algae.

Troy has also introduced additives in its Z-line, such as the new Troysol Z370 universal wetting and mar & slip additive, which is free of VOCs, HAPs (hazardous air pollutants), and APE (alkylphenol ethoxylates).

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

## Stone Tucker Instruments Presents the PTQ Goggle

The goal of PTQ goggles is to increase comfort and productivity and reduce fatigue. Peel and stick lens covers are tedious and ineffective attempts at keeping the lens clean during and after use. Unlike the mess created using traditional lens protectors, the PTQ system with its canister attached to the goggles and holding 14 frame advances, the mess is virtually eliminated. There is no need to remove the goggles for this process, leaving the flow of work uninterrupted.

[www.stone-tucker.com/](http://www.stone-tucker.com/)



## Graco Introduces E-Flo DC Electric Drive Pumps

### – The Next Generation of High Performance Industrial Pumps



Graco Inc. unveiled its new high-performance E-FloDC (Dual Control) line of industrial pumps ideally suited for paint finishing applications. Graco's E-Flo DC electric circulating pumps are designed to operate by maintaining either constant pressure or a constant flow rate. To protect the pumps from premature wear, the E-Flo line was developed with an integrated runaway protection system that is standard on all models. E-Flo DC pump models include both Basic and Advanced. The Basic model offers local control with two simple control knobs located directly on the pump, making it easy to adjust the pump settings. The Advanced model features a digital control module for additional performance control and the ability to manage multiple pumps from a single module. It also has the ability to easily integrate with a customer's Programmable Logic Controller network via fiber optics.

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

## Clariant Presents the EcoTain Life Cycle

Clariant announces its new EcoTain approach to sustainable innovation. The four steps are sustainable design, responsible process, safe & efficient use, and eco-integration. The benefits at a specific lifecycle phase are illustrated by the following four product examples: Synergen GL5; Hostacerin SFO; Texcare SRA 300 F and Safewing MP I 1938 ECO.

Synergen GL5 – an agrochemical adjuvant – is made up of around 95 percent bio-based substances comprising polyglycerol ester and coconut fatty acids, and contains no toxic NPEOs – nonylphenol ethoxylates. Hostacerin SFO – an emulsifier for cosmetics – its production is carried out at low temperature and in a single step. Texcare SRA 300 F – a soil release polymer – is used in laundry detergents that results in no skin and no eye irritation. Safewing MP I 1938 ECO is an aircraft de-icing fluid.

Clariant also presents its new Ceridust micronized wax innovations for wood coatings, powder coatings and printing inks are based on renewable raw materials. Ceridust 7820 TP is ideal for usage in high-gloss applications. At high wax concentration Ceridust 7820 TP shows almost no matting. In addition, when used at a 2 per cent dosage level, it eliminates pinholes without reducing the gloss level. New Ceridust 8330TP is a partly-renewable polymer wax for printing inks. Ceridust 8330 TP has been tested and approved on the largest-scale printing machinery.

[www.ecotain.clariant.com](http://www.ecotain.clariant.com).

## DuroAir Announces Breakthrough Industrial Indoor Air Quality Recycling Technology

DuroAir Technologies Inc. is pleased to announce that it has developed the world's first known portable air containment and filtration technology that fully filters and recycles industrial contaminated indoor air and returns it safely to the indoor air environment. The Industrial Hygiene Assessment report was issued January 31, 2013 by Ontario Environmental and Safety Network Ltd. ("OESN"). "OESN" was recommended by the Ontario Ministry of Labour as a competent independent company capable of making the assessment required for such a significant technological breakthrough such as what DuroAir has produced, and as an Agency that the Ministry would rely upon. DuroAir requested OESN to provide an evaluation "to determine if the spray booth and filter technology (which exhausts directly into the surrounding indoor space) is effective in capturing contaminants and therefore will not impact the surrounding indoor environment where it is used."

The report can be summarized as follows: Four primary areas of concern were monitored includ-

ing Hexamethylene Diisocyanate ("HDI"), Volatile Organic Compounds, general Indoor Air Quality and noise; No compound identified ever exceeded allowable limits set in Ontario as prescribed by Ontario Regulation 833/90; No HDI monomers were detected at all; Some HDI oligomer was detected but at a level of less than half of the limit suggested by the only known jurisdiction in North America (Oregon) to name a limit; Data suggests occupational exposure limits for carbon dioxide, carbon monoxide and particulates (not otherwise specified) will not be exceeded. Measurements indicate that 99 per cent of noise measurements were below 60 dBA.

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

## Antromophical Robot With A Linear Spray Coating Machine

Under the designation VEN SPRAY VARIO, Venjakob Maschinenbau GmbH & Co. KG has introduced its latest spray coating machine. The VEN SPRAY VARIO combines the flexibility of an industrial painting robot with the high output of a reciprocating spraying machine. Precise coating of edges by robot and coating of surfaces by reciprocator with constant speed "inline"; no stopping, no stop and go, just constant work flow. Therefore more output (coated surface/minute) in comparison to other machines available on the market.

One advantage of this system technology is also the better cross linking of the paint film at the transition from the surface to the edges.

Besides new developments from the company finishing sector, Venjakob has focused its research and development on enhancements in UV curing technology. Appropriate to LIGNA, everything centers on the topic LED-UV. The new VEN DRY UV-LED is designed for the curing of lacquer on three dimensional work pieces. Thereby the advantages of LED- technology are now available in the area of 3D-curing. The main advantages of this new technology are the reduction of energy consumption and the low thermal impact of the work pieces.

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

## Ashland Introduces Natrosol Performax HEC

Ashland introduces its new Natrosol Performax HEC to the worldwide Coatings industry. The Natrosol Performax technology triggers dispersion in any water-based medium, even under low shear conditions.

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

## Cefla North America Announces Prima-Spray Machine



PRIMA is a reciprocating spray system for water or solvent-based coatings. It handles up to 7500 square feet of material per eight-hour shift, and panels up to 1300mm wide. The conveyor offers variable speeds from 1-3 meters/minute, and includes an integrated, intuitive 6" touch-screen control.

<http://www.cefla.com>

## Durr Ecoclean: A New Dimension in Solvent-based Cleaning

Organic solvents are commonly used in industrial part and surface cleaning where highly oil-contaminated or difficult-to-dry parts are involved, or where oils are used in machining and metal forming operations or oil-free surfaces are specified for downstream steps such as hardening. Durr Ecoclean's cleaning systems include heat recovery, bypass filtration, injection flood washing (IFW), high performance, and a series of energy saving and emission-reducing features. These cleaning systems can be run on halogenated hydrocarbons, as well as modified alcohols. They are equipped with integrated floor trays. These design details permit rapid filling and draining of the work chamber and tanks while also ensuring an optimum solvent supply to the product basket. The solvent cleaning systems can be fitted with several tanks and flooding tanks for a multi-stage cleaning process. The standard bypass filtration system re-circulates the cleaning fluid up to 100 times per hour. For continuous solvent reconditioning, Durr Ecoclean systems come with an integrated fully automatic distillation unit as well as full-flow and bypass filtration in the standard package. The full-flow filtration system cleans the solvent during both filling and draining of the work chamber. All filter housings are designed to support the use of bag or cartridge-type filters and ensure easy replacement of the filter elements. For ultra-fine filtration purposes, cartridge filters down to 1 micron can be fitted.

[www.durr-ecoclean.com](http://www.durr-ecoclean.com)

## Calendar of Industry Events, 2013

### Bayer Introduces the Bayblend T50XF

Bayblend T50XF is a polycarbonate/acrylonitrile butadiene styrene (PC/ABS) blend with high-flow properties. It offers scratch resistance compared with other low-gloss polyolefins, while maintaining mechanical properties, especially low-temperature impact and low-emission and hydrolytic-stability requirements.

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

### Sartomer Introduces CN9062 Dual-Cure Oligomer for Exterior Hardcoat Applications

Global specialty chemicals manufacturer Sartomer USA, LLC, now offers CN9062, a liquid high functionality oligomer that brings significant scratch resistance to demanding coatings applications. CN9062 combines acrylate and hydroxyl functionalities for dual-cure capability. CN9062 is UV/EB curable and is reactive with NCO based on its hydroxyl functionality. It is also a pentaerythritol tetraacrylate (PETA)-free oligomer, which reduces irritation potential.

Formulators can download additional technical documentation at:

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

### Arkema launches Altuglas Composite

Altuglas Composite is the first new thermoplastic resin which allows the manufacturing of composite parts on the same equipments and processes as thermoset composites. The resulting composite parts exhibit mechanical properties similar to those of thermoset parts, but their thermoplastic nature brings the added advantages of thermoformability and recyclability. Altuglas Composite is an innovative acrylic material, developed within an R&D partnership between Arkema and PPE (Pôle de Plasturgie de l'Est). To optimize Altuglas Composite formulations, Arkema and PPE have partnered with specialists in the composite industry – MVC (Brazil), Chomarat (France) and 3B-fibreglass (Belgium). Additionally, Arkema and MVC have developed a fully thermoplastic solution which eliminates the need for a traditional gel-coat for upper layer. In this technology, the decorative layer is prepared by thermoforming a thermoplastic multilayer sheet such as ABS/PMMA in the mold prior to the reinforcing fabric laying operation.

[www.arkema-inc.com/canada/arkema-canada-inc](http://www.arkema-inc.com/canada/arkema-canada-inc)

**April 26, 2013:** Ontario Paint Association (OPA's) 21st Annual Night at the Races! Woodbine Entertainment, gates open at 6:40, post time 7:30 pm, Woodbine Race Track, Rexdale, ON, for registration form contact: Jacqueline Moore [jmoore@lvlomas.com](mailto:jmoore@lvlomas.com)

**June 10-12, 2013:** SURFIN, Stephens Convention Center, Rosemont, IL [www.nasfsurfin.com](http://www.nasfsurfin.com)

**September 30-October 3, 2013:** Canadian Manufacturing Technology Show (CMTS) 2013, The International Centre, 6900 Airport Road, Mississauga, ON, [www.cmts.ca](http://www.cmts.ca)

**October 1-2, 2013:** UV.EB EAST 2013, Sheraton Hotel & Conference Center, Syracuse University, Syracuse, NY, [www.radtech.org](http://www.radtech.org)

**October 8-10, 2013:** Powder Coating 2013, America's Center, St. Louis, MO, [www.powdercoating.org](http://www.powdercoating.org)

**October 20-22, 2013:** CPCA Conference 100th Anniversary, Chateau Laurier, Ottawa, ON, [www.cdnpaint.org](http://www.cdnpaint.org)

**October 24-26, 2013:** WMS Woodworking Machinery & Supply Expo (WMS) International Centre, Toronto, ON, [www.WoodworkingExpo.ca](http://www.WoodworkingExpo.ca)

**November 18-21, 2013:** FabTech, McCormick Place, Chicago, IL, [www.fabtechexpo.com](http://www.fabtechexpo.com)

## Step Up To the Plate at **SUR/FIN**

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| Rosemont, IL [www.nasfsurfin.com](http://www.nasfsurfin.com)



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[www.cfcfm.ca](http://www.cfcfm.ca)

## Encor 2433, the First Dispersion Allowing Formulation of Direct-To-Metal (DTM) Coatings

Encor 2433 by Arkema, provides coating formulators with wider options in their formulation of general maintenance and Direct-To-Metal coatings. Its key features include intrinsic corrosion protection, chemical resistance, high gloss, good adhesion on various metal substrates, and straightforward DTM formulation. A DTM coating has to provide in a single coat the properties that are usually developed by, at the very least, a two-coat system: the primer for adhesion on metal and corrosion protection, and the top coat for aesthetic properties (gloss, durability), as well as chemical and mechanical resistance. Bearing in mind these various requirements, a DTM paint formulation imposes a number of constraints: it cannot accommodate the introduction of anticorrosive pigments because these are too detrimental to the gloss due to their high particle size.

The SECHA (Self Crosslinking Hydrophobic Acrylic) technology, developed by Arkema, represents the latest technology in waterborne acrylic polymers. This new category of polymer offers many advantages to paint formulators and applicators as it fulfils many of today's requirements. Encor 2433 makes it possible to formulate high performance coatings with a Volatile Organic Content (VOC) below 100g/l.

[www.arkema-inc.com/canada/arkema-canada-inc](http://www.arkema-inc.com/canada/arkema-canada-inc)

## Demsolv, New Regenerated Solvent Safe for People and the Environment

Demsolv by Arkema, is a DMSO (dimethyl sulfoxide) that has been regenerated by distillation and odorized, for the paint stripping, cleaning and polymer formulation markets. It is the result of collaboration between Arkema and Speichim Processing. Like DMSO, Demsolv is a safe solvent for man and the environment, not labeled hazardous according to European directive 67/548/EEC. Collaboration between Arkema and Speichim Processing concerns the European market, and covers the following activities: Recovery of wastes containing mostly DMSO by Speichim Processing, Regeneration of DMSO by high vacuum distillation by Speichim Processing, in accordance with the technical specifications set by Arkema; Following odorization, Demsolv is marketed by Arkema's teams.

[www.arkema-inc.com/canada/arkema-canada-inc](http://www.arkema-inc.com/canada/arkema-canada-inc)

## CECA Presents Range of Surfactants and Polyols, Functional Additives and Molecular Sieves

CECA will be launching its complete range of surfactants and polyols sold under the brand names Dianol, Adiansol, Ensoline and Surfaline. The Dianol and Adiansol products are used to improve the adhesion properties and hydrolysis resistance of industrial coatings and automotive resins. The Ensoline and Surfaline products are wetting and dispersing agents for better stabilization of paints. CECA's alkoxyates, polyols and surfactants are unique additives that perfectly complement Arkema's offer in the field of paints.

[siliporite.com](http://siliporite.com) - [clarcel.com](http://clarcel.com) - [cecachemicals.com](http://cecachemicals.com)

## Walter ZIP ONE and Nature Boost

Walter Surface Technologies (WST) is pleased to announce ZIP ONE. Designed for cutting thin gauge metal, ZIP ONE is a specially-reinforced disc bonded with a proprietary mix of high performance abrasives that deliver extra cool cutting. ZIP ONE is the first wheel on the market with a true 1 mm (1/32") thickness that can last much more than only a few cuts, capable of work with thin metal sheets (thinner than gauge 14 or 5/64" thickness)

Walter has also introduced a revolutionary and eco-friendly solution for heavy-duty industrial cleaning. Nature Boost is a new additive derived from vegetable extracts exclusive to Bio-Circle Environmental Solutions. This new ingredient is obtained from a by-product generated in the vegetable processing industry, thus not impacting the cost of food. This unique raw material has excellent solubility of oils, greases, inks, adhesives and even paint, thus making it a very attractive alternative to traditional petroleum based solvents. What makes the Nature Boost additive so impactful is that it is not flammable, does not emit Volatile Organic Compounds, is non-toxic and bio-renewable.

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

## OMNOVA Solutions Introduces a 2K Epoxy Fortified Institutional Coating

OMNOVA Solutions introduces PLIOTEC SA60 colloidal dispersion, which is fortified with a water-based epoxy to form a 2K coating system. This system can be used on interior vertical walls in institutional locations such as schools, hospitals, warehouses, office buildings, correctional facilities and other high traffic areas that are subject to frequent cleaning.

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

## Michelman New Application Solutions

Michelman will be introducing a variety of new and enhanced surface modifiers. One of the new products being introduced will be Michem Wood Coating 75, a proprietary anionic formulation that provides water resistance in topical wood coatings.

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

## Wilden High-Pressure Features its AODD Pumps

Wilden is pleased to announce the High-Pressure models of its Advanced Series Metal Air-Operated Double-Diaphragm (AODD) Pumps featuring operational capabilities that make them ideal for the loading, unloading and transfer of resins, solvents and additives in Paint & Coatings manufacturing applications.

Wilden offers three models of Advanced High-Pressure AODD Pumps:

**H200:** This 25mm (1") duplex pump uses both liquid chambers to pump fluid. It is constructed of ductile iron and creates a 3:1 pressure ratio with a maximum inlet air pressure of 6.9 bar (100 psi) and maximum discharge pressure of 20.7 bar (300 psi) while delivering flow rates up to 94 L/min (25 gpm). It can handle solids up to 6.4mm (1/4") at operating temperatures to 225°F (107°C).

**H400S:** This 38mm (1-1/2") simplex pump uses only one liquid chamber to pump fluid while the second is used as a pressure-amplification chamber. It is constructed of aluminum or stainless steel and creates a 2:1 pressure ratio with a maximum air inlet pressure of 8.6 bar (250 psi) and maximum discharge pressure of 17.2 bar (250 psi) while delivering flow rates up to 242 L/min (64 gpm). It can handle solids up to 8mm (5/16") at operating temperatures to 225°F (107°C).

**H800:** This 51mm (2") duplex pump uses both liquid chambers to pump fluid. It is constructed of stainless steel or ductile iron and creates a 3:1 pressure ratio with a maximum air inlet pressure of 5.9 bar (85 psi) and maximum discharge pressure of 17.2 bar (250 psi) while delivering flow rates up to 359 L/min (95 gpm). It can handle solids up to 12.7mm (1/2") at operating temperatures to 225°F (107°C).

All three models are available with Wil-Flex Diaphragms.

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

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



## REIS Starts Delivery of Robot Systems with its New reisPAD Portable Teach Pendant.

The reisPAD of Reis Robotics is designed in such a way that the advantages of touch-screen interfaces are used without missing the haptic feeling when operating a button. Operation can be learned intuitively and is done via a maximum of two operating menus so that the user does not need to scroll through a variety of menus for selection of the desired function. The reisPAD is designed in a way that allows entering a PIN code authenticating the loop between operator and safety electronics in the robot control. This software solution, as a replacement for the key switch, conforms to the current safety regulations and was accepted by the certification bodies. The reisPAD is not only used at Reis for the automation systems, but also by automation manufacturers from related sectors who get the innovative operating and programming technology based on the reisPAD from Reis Robotics and use it in their systems. The reisPAD concept is designed in such a way that other automation manufacturers can install their own user interface on the reisPAD and adapt it to the relevant application.

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

## A New Series of Machines Designed for Electrostatic Bells

Spraymotion has announced the new 311440 series, recently developed. It is derived from the proven mechanical and control features of hundreds of machines that have demonstrated long service histories. The standard model machine fits in a standard 6 foot wide spray booth. The target area is 18 inches wide X 24 inches high with a bell pattern that is 12 inches in diameter. Larger target sizes are available. The machine can be fitted with 2 bell mountings. Interface signals to the bells control panel can be included to set electrostatic voltage and bell speed. Air pressure or mass air flow controls can be added to the machines so all settings are part of the 311440's program script. A personal computer can be used to enter or change scripts in addition to being able to access them at the machine.

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

## Polyscope Extends XIRAN Portfolio with Low Molecular Weight Styrene Maleic Anhydride Co-polymers

Polyscope is extending its existing portfolio of XIRAN styrene maleic anhydride co-polymers with two new grades, XIRAN SZ25010 and XIRAN SZ40005. Each has a significantly lower molecular weight compared to existing XIRAN grades. The two new low molecular weight grades are particularly suited for applications such as:

**Adhesive labels:** to improve resistance to iced water (water repellence) and removability in caustic water; adhesion booster and for improved temperature resistance of can sealants.

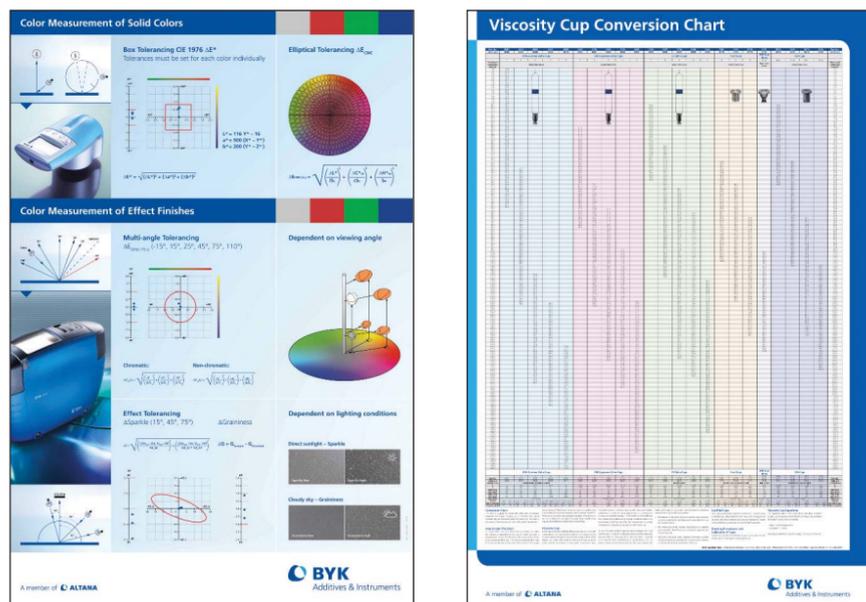
**Composites:** to improve cross linking, and as an alternative to formaldehyde cross linking systems, to improve adhesion among surfaces with different polarities; as wax emulsions to improve hydrophobicity of substrates.

Coatings and paints: as pigment and filler dispersant to improve water repellence, colour strength, Temperature resistance, pigment wetting, viscosity stability; as binder or crosslink agent to increase adhesion, alter polarity or function as matting agent.

Paper: as sizing agent to improve water repellence, compatibility with additives, coefficient of friction, surface film and strength and dimensional stability, reduce linting and dusting in high ash papers.

[www.polyscope.eu](http://www.polyscope.eu)

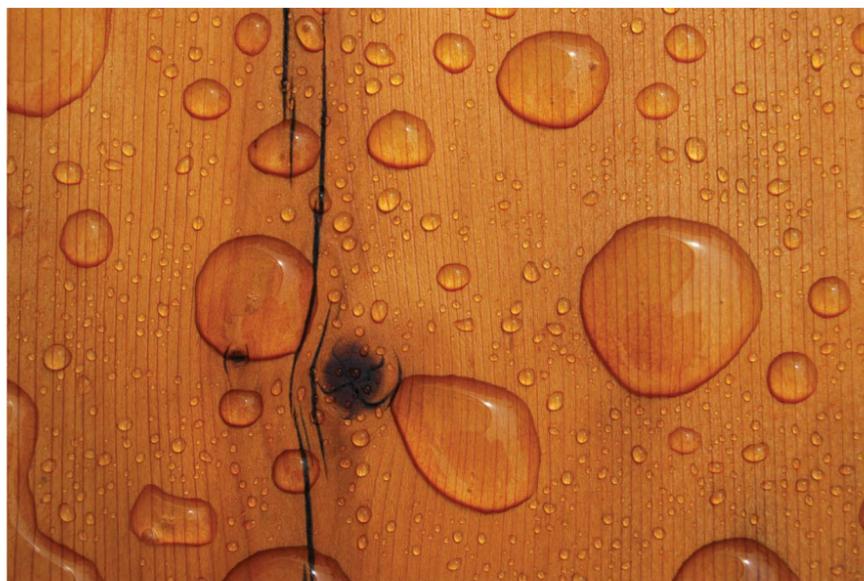
## BYK-Gardner Posters for Your Lab



BYK-Gardner is pleased to provide two posters for technical use: Colour Theory poster and Viscosity Conversion Chart poster. The Colour Theory poster displays colour measurement of solid colours and colour measurement of effect finishes. The Viscosity Conversion Chart poster compares the efflux times of the BYK-Gardner Zahn cups, S90 Signature Zahn cups, EZ Zahn cups, Ford cups, Din Cup 4mm, and ISO cups. The poster also includes instructions for using the chart, standard methods, specifications, viscosity equations, centistokes vs. efflux time, and suggested standard oils for each cup.

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

## Water-Dilutable Oligomer Exhibits Water Resistance After Cure



Dymax Oligomers & Coatings brings a new water-dilutable oligomer, Bomar XR-9416. This material exhibits substantial water resistance after cure. This oligomer's water resistance results in a water-barrier coating that has anti-fogging characteristics. No sophisticated equipment is needed to dilute the product – hand mixing is sufficient. Water-dilutable oligomers are ideally suited for wood coatings. When water penetrates the wood, the wood swells at the surface and improves the adhesion of the coating without the need for a separate primer step, resulting in tack-free, tough, flexible coatings with excellent water, chemical, and stain resistance. Other substrates demonstrating good adhesion are ABS, acrylic, aluminum, cold rolled steel, glass, and stainless steel. After cure, tack-free, tough, and flexible coatings are formed with excellent water, chemical, and stain resistance.

[www.dymax-oc.com](http://www.dymax-oc.com)

## Gelest's Extensive Line of Reactive Silicone Fluids and Materials Continues to Expand

Gelest, Inc. has once again extended its line of reactive silicone fluids and materials, this time with the addition of new silicone macromers, including monofunctional and heterobifunctional monodisperse reactive fluids. Gelest's range of reactive silicone fluids and materials find application in adhesives, binders, ceramic coatings, dielectric coatings, encapsulants, gels, membranes, optical coatings,

photolithography, polymer synthesis, and sealants.

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

## Now Available From Birchwood Technologies

– MICROLOK MZN Zinc Phosphate Is The New Option For Areas With Water Restrictions



Birchwood Technologies introduces MICROLOK MZN with the Near-Zero Water Recycler and Ion Exchange, water consumption is reduced by 99 per cent. For zinc phosphate users in water-restricted areas, this is a major improvement – it means they can continue critical metal finishing operations while observing tight water guidelines. Birchwood Technologies' system utilizes a combination of Ion Exchange and Near-Zero Water Recycler with its proprietary MICROLOK MZN Zinc Phosphate product. The resulting zinc phosphate coating forms a friable, sacrificial surface treatment that improves break-in lubricity of mating/sliding surfaces such as piston/cylinder assemblies, gears, bearings and similar components. The process line layout is as follows: 1) PRESTO KLEEN alkaline soak cleaner: 160 degrees F; 10 minutes. 2) Double Water Rinse, treated by NEAR ZERO Water Recycler. 3) MICROLOK MZN Zinc Phosphate: 150 degrees F; 15 minutes.

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

## New Transportable Powder Demonstration Kit Allows Material Suppliers to Conduct On-Site Spray Trials Easily at Customer Facilities

Nordson Corporation a recognized leader in liquid and powder coating technologies, introduces the Encore® Transportable Powder Demonstration System for in-plant material testing. Designed specifically for powder material suppliers, this versatile system delivers the proven performance of the Nordson Encore LT production gun and controller, and comes in an extremely rugged, travel-ready case for easy portability.

The system provides and easily stores the components necessary for optimum spray trial results, including:

- Encore LT manual gun and controller (agency-certified)
- Encore cup gun kit
- Selection of optional nozzles
- Encore 90-degree pump
- Pump adapters and optional o-rings to spray from any fluidized hopper or vibratory box feed unit
- All necessary powder and air tubing
- Encore LT operator's card and product manual

The rugged case construction ensures safe transport via airplane, common carrier or car. The transport case also easily converts to a controller platform using a piece of wedge-shaped rigid foam that is included with the system. It also incorporates heavy-duty wheels, a pull-out handle and handle safety latch for added security and durability. The case measures 20 in x 24 in x 15 in (51 cm x 61 cm x 38 cm) and weighs 60 lbs (27 kg) when completely loaded with the testing components.

[www.nordson.com/powder](http://www.nordson.com/powder)



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**AD INDEX**

Advercom	34
AkzoNobel Wood	22
Andicor	7
ARC	29
CanLak	21
Conn	11, 34
CPCA	9
DeFelsko	4, 11
Enclosed Track	34
EPSI	6
Eurotech/Sata	23
EXEL	25
Fischer	
Global Finishing	17
Graco	6
HDTS	4
Inortech	36
Netsch	13
Nordson	2
Nova	34
Park Thermal	18
Pro Glo	21
Promix	34
Quick Blades	34
Ransburg	24
Stone Tucker	8
SURFIN	35
TTX	19
Univar	5
Valspar	26
Walther Pilot	24
Yorke Towne	25



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