CFCM
CANADIAN FINISHING & COATINGS MANUFACTURING

$12.00 February 2008

# Nordson Holds Successful Powder Coating Workshop

Nordson Canada hosted a two-day powder coating workshop January 8 and 9, 2008 at its facility in Markham, ON.

"Powder Coating Basics and Beyond" was another in the successful nPowered Program series of training workshops held by the company.

Twenty-six attendees from a variety of major industrial finishers to job shops received an intensive, introductory seminar on powder coating materials, their application, troubleshooting and maintenance, as well as hands-on training.

Ken Kreeger, Global Director of Business Development, led a morning lecture on Day One that included an introduction to

Ben De La Rosa from Teknion practices the proper manual application of powder to a complex extrusion at the Markham ON. Nordson Powder Coating Seminar.

*For full story see page 6*

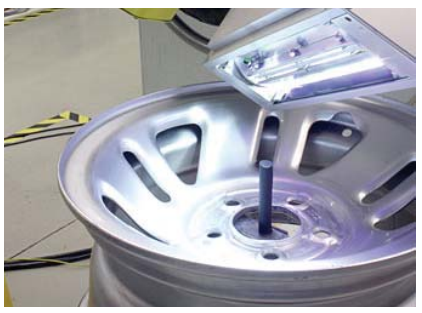
## ALSO IN THIS ISSUE



# A 2008 Look at UV Curing

According to David Harbourne, President, Fusion UV Systems, Inc., immediate past president of the UV & EB Technology Association Radtech, recent surveys and market research agree that the outlook for Ultra Violet (UV) curing in 2008, based upon the tons of UV curable chemistries purchased, will be in the range of six to eight per cent. This UV growth is consistent with 2007 and is not expected to change much in the foreseeable future. Harbourne says this growth appears sustainable because UV delivers a "value added" distinction to a wide and diverse array of industrial, electronic, medical, and graphic arts applications.

What has and will continue to change is the who, what, where of UV curing being used. The dynamics seen in the past five years will



continue and the results of shifting in manufacturing, and consolidation in select fields, will cause some disruption and dislocation of the UV industry in this and future years.

Among the most significant change in the use of UV curing in the graphic arts industry is the shifting of its use from traditional decorative purposes in both sheet fed and narrow and wide web printing, to the use of UV curing in

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## IN THE NEWS

### Association News

**The ICE has Melted and flowed into the American Coatings Show**

*NPCA and FSCT Sign Agreement to Merge*

So, Toronto hosted the last official ICE show. The National Paint & Coatings Association (NPCA) and the Federation of Societies for Coatings Technology (FSCT) have signed a Memorandum of Agreement, which outlines the details of a prospective merger of the two organizations. The agreement describes a "governance merger" that will consolidate the governance, management, and administrative functions of both groups

"NPCA and FSCT will fully endorse and support the American Coatings Show as the premier exhibition for the coatings industry."

under NPCA, while preserving each organization's separate identities, operations, functions, and member services. NPCA and FSCT will remain as separate organizations managed through a common governing structure.

As part of the merger, FSCT and NPCA have agreed to combine the International Coatings Expo (ICE) with the American Coatings Show and Conference (ACS) to be held on June 2-5, 2008, in Charlotte, NC. With the

*continued on page 5*

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# BEYOND CHEMISTRY

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# Inortech Chimie Inc.

## We're Proud of our R & D

Inortech Chimie has been in business since Friday 13, April 1990, but it wasn't an unlucky move as that particular day of the week might imply . . . the company has grown to include 25 suppliers. They built their own building in 2005 complete with their own research and development lab. This lab is Inortech's pride and joy.

"We are proud of our R&D. It is the most important," says the company's head Jean-Marc Pigeon. "It is what makes us stand out from everybody else, especially when it comes to specialty items."

Inortech has the exclusive ability to test a formulation in the lab then take it to directly to Inortech's customer. So Inortech is in a position to test new technologies such as catering to environmentally friendly requests, low volatile organic compound (VOC) products and more.

The company says they are the only distributors in coatings, inks and plastics with a fully equipped laboratory.

## Customer Service

Currently 14 employees work at Inortech, four in the lab. Two of their formulators have 30 years experience. Inortech lab and sales people have in-depth knowledge in the markets the company services: paint, ink, adhesive and plastic. They are dedicated and have the customers' success at heart. So they do everything possible to make it easy to work with Inortech.

## New Technologies

Inortech is known in the market for bringing forth and testing new technologies. Unlike other distributors they have the ability to qualify these new technologies before entering the market. Thus customers know that the technology works and if they have problems they know Inortech will be there to help.

"Our customer service has the mandate to do everything possible to meet our customer's requirements," says Pigeon. "We will do everything possible to satisfy our customer's needs." Besides its efficient customer service department, Inortech has inventory warehouses across Canada in Montreal, Toronto, Winnipeg, Edmonton and very soon—by the end of the first quarter of 2008—Vancouver.

"We team up with our customers and suppliers to make sure that our customers are not negatively affected by the changes that today's marketplace challenges call for. We keep our customers informed and part of our decision making process," says Pigeon.

With their large team of suppliers, Inortech has all the raw materials to formulate any paint or ink. And they can work with three different technologies: powder coating, UV cure/raw materials and water based raw materials. The company is even entering into the new market of nano-technology.

"We implemented new policies and new computer programs to help us keep our word and live up to our high standards. On very special occasions we flew material to a customer to get it there on time," says Pigeon.

Inortech has grown by making sure that its customers understand that its lab is there to help and that customers are welcome to use it as much as they need. Also suppliers that visit Inortech have an immediate understanding of how beneficial the lab is to doing business the way they want —the customer comes first.

## Laboratory Equipment

RHEOMETRIC SR5 RHEOMETER: for comprehensive evaluation of the rheological character of fluids in dynamic environments.
BUHLER 3 ROLL MILL: for the preparation of paste pigment dispersions.
EIGER MEDIA MILL: for the production of liquid to semi paste pigment dispersions.
EIGER HIGH SPEED DISPERSER: mixing and dispersing equipment for paint, ink and adhesives.
RIGH SPEED DISPERSER: Explosion proof 2 gallons capacity.
HANNOVIA UV CURING UNIT: 300-watt variable configuration with a 12" wide conveyer belt variable speed and intensity lamps.
KERSHAW INKOMETER: for evaluation of ink tack and misting.
KERSHAW WATER PICK-UP UNIT: to determine the water balance and emulsifiability.
ATLAS SUN TESTER: to evaluate pigment fading.
LITTLE JOE INK PROOFER: to evaluate ink transfer and relative performance of offset inks.
X-RITE COLORIMETER: for the determination and evaluation of color properties.
Q-FOG: Corrosion and humidity cabinet.
TABER ABRASER: to determine abrasion resistance of a coating or ink.
OTHER EQUIPMENT: Gloss meter, Brookfield (reading in Krebs and CPS units), Zhan and ford cup viscometers, Temperature controlled oven, Hegman and NPIRI gauges, reverse osmoses water treatment unit, etc.
TMI COEFFICIENT OF FRICTION: Slide angle tester.
TMI RUB TEST: Rub tester.
ELCOMERTER 3034: Pendula hardnee tester Persoz and König.
UV con: Weathering fastness simulation.
OTHER EQUIPMENT: Gloss meter, Brookfield (reading in Krebs and CPS units), Zhan and ford cup viscometers, Temperature controlled oven, Hegman and NPIRI gauges, reverse osmoses water treatment unit, pencil hardness test package, coning mandrel, dry time recorder, microscope, electronic thickness gauge for wood/plastic and metal, etc...

Inortech is always on the cutting edge of technology.

# ANOTHER DAY, ANOTHER DOLLAR

How do you like my picture with Saucier er…I mean Santa Claus. I think he needs a haircut. A great time was had by all at the Toronto Society of Coatings Technology (TOSCOT) Christmas Luncheon. We have more pictures in this issue.

So, how does the saying go, "Another day, another dollar." In this case it is "another year another report on how the Canadian dollar is bouncing around." And to use another very common annoying saying, "what comes up must come down" and that is exactly what the puffed up Canadian loonie has done. It reminds me of a helium balloon, up it goes to float around for a while only to sink eventually back to the ground.

In a story by The Canadian Press published on the last day of December 2007, it was reported that the loonie started trading on Jan. 1 at US85.81 cents. It closed just above parity Sept. 28 at 100.52. On Nov. 7, 2007 the Canadian dollar peaked in trading above US110.24 cents on higher oil prices. Modern day high. Then by the end of 2007 it was hovering around 102 cents US. So, from Jan 1 to the record November high, the Canadian dollar rose just over 24 per cent putting it among the best performing currencies in the world. In comparison, the record low for our loonie was 61.79 cents on Jan. 21, 2002. The rise in the dollar is being attributed to high energy prices and Canada's strong economy helping attract investments in Canadian stocks and bonds. The weakness of the US dollar is also being blamed. Apparently higher interest rates in Canada compared to the US also kept demand high for the loonie as did the demand for Canadian dollars to finance multibillion-dollar corporate acquisitions of Alcan and other Canadian companies. The impact of all this is that the loonie's rise helped lower prices for US trips such as Canadians visiting American based trade shows, and even helped imports of fruits and vegetables and industrial machinery from the US, but it battered Canada's export.

So what do we have to look forward to in 2008? On the day of writing this in February 2008, the Canadian Dollar = 0.99243 US Dollar. Down comes the helium balloon. In fact, the loonie dramatically fell below 97 cents US in January, only to surge past parity a week later to close at 101.31 cents US. Which Canadian economists say is largely in reaction to the Federal Reserve's aggressive attack on interest rates in an attempt to forestall a U.S. recession.

They say that with U.S. demand for Canadian products easing further, exports of Canadian manufactured goods will apply an even greater drag on the economy going forward, as will a slowdown in construction. At least a dollar close to parity with the US is good news for Canadians this coming June, traveling to US based trade shows. There is big news in that area this year as the National Paint & Coatings Association (NPCA) and the Federation of Societies for Coatings Technology (FSCT) have merged to melt the ICE originally set for Chicago this fall and turn the two shows into one big American Coatings Show. I'm sure all of this is good news to exhibitors who can keep their costs down and go all out for this one show. I see 2008 as a year of price increases because I'm not sure I've seen so many price increase press releases at one time as I have these past few months. And every company has the same reason, which reads something like: "this action is necessary due to significant increases in raw material, feedstock, freight and energy costs." At least the Goods and Services Tax (GST) is a bit lower.

Meanwhile, we hope you enjoy our first issue of the New Year. If you have any new products or industry news events coming up, be sure to let us know. Please visit our web site at www.cfcm.ca

*Sandy Anderson, Editor*
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combination of ICE into the ACS, ICE 2008 in Chicago will be canceled. NPCA and FSCT will fully endorse and support the American Coatings Show as the premier exhibition for the coatings industry.

In addition, NPCA and FSCT will endorse and support the FSCT's international technology conference, FutureCoat!, which will continue as the signature science and technology event for the industry and a forum for FSCT's Annual Meeting. A complement to the American Coatings Conference, FutureCoat! will be held in the fall of 2008 in Chicago and feature multi-track educational programming focused on Globally Responsible Coatings. NPCA and FSCT have agreed to explore the possibility of holding FutureCoat! in conjunction and/or in cooperation with future American Coatings Shows and American Coatings Conferences and/or the NPCA Annual Meeting and Leadership Conference. NPCA and FSCT also have agreed to coordinate future planning of the American Coatings Show and Conference and FutureCoat! to avoid conflicts for participants and to ensure the most effective and efficient use of industry resources.

NPCA President Andy Doyle and FSCT Executive Director Joe Pontoski issued the following joint |statement:

"NPCA and FSCT view FSCT as the leading technical and scientific educational organization for the industry and NPCA as the leading advocacy and public policy based organization for the industry. NPCA and FSCT fully endorse membership in and the programs and activities of both organizations. NPCA and FSCT are committed to combining their resources and expertise for the greater benefit of the industry. The purpose of integrating the management and financial resources of both parties is to enhance the overall quality and breadth of programs and services provided to the industry and to efficiently and effectively apply resources to industry priorities. In addition, we recognize that an important aspect of a successful merger of our two organizations is a continued affiliation and effective interaction with the industry's network of local societies, councils, and associations, and the Coatings Industry Education Foundation. We not only expect our relationship with these groups to continue, but to be enhanced and expanded."

NPCA and FSCT have agreed to an action plan to finalize the merger. FSCT's Board of Directors has already approved the Memorandum of Agreement and has recommended approval to its membership; NPCA's Board of Directors will take formal action on the Agreement at its meeting on March 19. Following a decision by NPCA's Board, the Agreement will be submitted to the FSCT general membership for approval beginning on March 21. Voting by the FSCT membership will likely take place between April 21 and May 2, 2008, for all members of record as of February 29, 2008. All aspects of the merger are expected to be completed by June 3, 2008.

NPCA is a voluntary, nonprofit trade association representing paint and coatings manufacturers, raw materials suppliers and distributors. As the preeminent organization representing the paint and coatings industry in the United States, NPCA's primary role is to serve as ally and advocate on legislative, regulatory, and judicial issues at the federal, state and local levels.

The Federation of Societies for Coatings Technology is the leader in technical education and professional development for the international coatings industry. Founded in 1922 as the Federation of Paint and Varnish Production Clubs, the FSCT has grown to consist of 26 Constituent Societies: 22 in the United States, two in Canada, and one each in the United Kingdom and Mexico. The organization's membership is involved in research and development, supervisory production and engineering, and technical sales/service regarding the formulation, testing, and manufacture of coatings. FSCT sponsors globally recognized programs such as FutureCoat! and the Advancements in Coatings Series, and publishes the Journal of Coatings Technology and Research and JCT CoatingsTech.

## RadTech UV/EB Technology Conference & Expo 2008

Held on May 4-7, 2008, Lakeside Center at McCormick Place, Chicago, IL, RadTech UV/EB 2008 is the World's Largest UV & EB Event — a 4-day conference and exhibition dedicated to fostering educational, technical, and scientific advancement in the manufacture and use of ultraviolet (UV) and electron beam (EB) curable products.

Located in the heart of Chicago, IL, the RadTech UV/EB 2008 Headquarter Hotel, the Hyatt Regency Chicago as well as other hotels within the room block are within walking distance to restaurants, shopping, and nightlife. Busing will be provided from the hotels to the convention center every day.

The RadTech UV&EB 2008 Conference will consist of two elements: UV/EB University and the RadTech UV/EB 2008 Technical Conference & Poster Session. Leading industrial and consumer product companies, as well as suppliers to the UV and EB industry will be presenting various industry sessions focused on presenting the benefits of UV and EB technology as well as practical application information on the technology.

More than 125 exhibitors will fill the show floor at RadTech UV/EB 2008 displaying the newest and best in Adhesives, Aerospace & Defense, Automotive OEM & Tier One Manufacturing, Automotive Repair & Refinish, Composite Applications, Commercial Printing, Converting/Packaging, Decorative Applications, Electronics/Electrical, Graphic Arts, Industrial Finishing, Opto Electronics, Metals, Photoresists, Plastics, Automotive, Wood Industries, and more.

Exhibit hours are Monday, May 5: 10:00 AM-6:00 PM, Tuesday, May 6: 10:00 AM-6:00 PM, Wednesday, May 7: 10:00 AM-2:00 PM

On Monday and Tuesday there will be a show floor reception from 5:00 pm-6:00 pm

The demos & product showcase lounge on the show floor will introduce attendees to how UV/EB interacts with daily life.

Non-exhibiting companies and employees are restricted from any type of solicitation on the UV/EB 2008 show floor, in conference session and in McCormick Place.

RadTech International North America is the nonprofit organization dedicated to the technical, educational and market advancement of Ultraviolet (UV) and Electron Beam (EB) Technology. RadTech has over 700 members that supply and use UV/EB equipment, raw materials and formulated products.

For more information contact RadTech International, North America Tel: 240-497-1243, Fax: 240-209-2337, E-Mail: mickey@radtech.org, www.uveb2008.com.

**CASF Votes to Affiliate with NASF**

Canadian Association of Surface Finishing (CASF) members voted very positively to proceed with the proposal to affiliate with the National Association for Surface Finishing. The results are as follows: Of the 42 per cent of all members who voted 89 per cent were in favour of the affiliation with the NASF and 11 per cent were not in favour. The CASF Executive will be in touch with members over the coming weeks with more details as to how the NASF Affiliation will proceed. There were concerns presented by those members who were not in favour of the affiliation with the NASF. CASF is committed to working with the NASF to address those concerns. A teleconference meeting with the NASF is scheduled on January 31, 2008; at which point all concerns raised will be presented to the NASF Executive and a response will be prepared and forwarded to all members thereafter.

**American Coatings Conference Program and Registration Available**

Registration is now open for the new American Coatings Conference (ACC), a high-level science and technology conference aimed at providing business value through commercial innovation. The conference will be held June 2-4, 2008, at the Charlotte Convention Center, Charlotte, NC.

Themed "The Next Level," the three-day conference will feature over 70 high-level academic and government technical papers for presentation and more than 40 poster presentations. Parallel conference sessions will address such topics as nanoparticles and nanostructures, novel materials, sustainable solutions, functional coatings, and much more. In addition, Pre-Conference Tutorials will kick off the conference, providing a unique opportunity for a crash course in some of the most important coatings technologies today, including radiation curing, corrosion protection, antimicrobial surfaces, polyurethanes and easy-to-clean coatings. The tutorials require pre-registration; registrations will be handled on a first-come, first-serve basis.

The ACC will run concurrently with the American Coatings Show, which will take place June 3-5, highlighting the presentation of products and services for the production of high-grade and competitive paint and coatings.

The National Paint and Coatings Association and Vincentz Network have organized the event. Visit www.american-coatings-show.com/conference for the full conference program and online registration information.

**Newly Released Attendance Number Show Positive Final Sur/Fin 2007 Tally**

SUR/FIN 2007, held this past summer in Cleveland, Ohio, exceeded expectations with an increase in non-vendor attendance by 9 per cent and increasing booth spaces reserved by a whopping 30 per cent. Figures supplied by the National Association for Surface Finishing (NASF), which manages the show, indicated 162 international participants representing 26 countries made the trek to Cleveland for the show. That number not only represents 12 per cent of the total number of attendees at the 2007 event but also reflects a double-digit increase over the year prior. Leading the way were Canada, Brazil, Germany, Korea, Mexico, India, and Japan, which collectively accounted for more than 75 per cent of international attendees present at SUR/FIN. Multiple representatives also hailed from Argentina, Columbia, Singapore and Taiwan.

Total numbers reveal that engineers, general managers, company presidents/owners, and purchasers collectively accounted for 60 per cent of attendees at the show.

The stage is now set for SUR/FIN 2008. For more information about SUR/FIN 2008, June 16-18, Indianapolis, IN, visit *www.sur-fin.net*

**Electrocoat 2008 to Host Dynamic Keynote Presenters**

In the line-up for Electrocoat 2008, set for May 14-16, 2008 in Indianapolis, IN, are three very strong and explorative keynote addresses hitting hard some of the issues facing today's manufacturing world. The Conference will kick-off with a powerful economic outlook provided by Dr. M. Ray Perryman of The Perryman Group, an economic and financial analysis firm widely regarded as one of the world's most influential and innovative economists, Dr. Perryman's discussion will center around the United States economy as it continues to expand, albeit at a moderate pace, even in the face of ongoing challenges. The second day will convene with Viktor Sekmakas of PPG Industries tackling the topic of Global Aspects of E-coat. Sekmakas, Vice President, Coatings and Managing Director, Asia/Pacific, will look at the growth of electrocoat in Asia over the past 10 years, as well as preview the future for e-coat in this dynamic region of the world. He will share his perspective on the challenges for growth, including language, culture, technology, and environmental issues. The final day will bring a dynamic presentation from Mr. Matt Kirchner of ABQC Corporation, a large metal finishing facility in Milwaukee, WI. In his thought-provoking, entertaining and informative style, this Industry CEO, Products Finishing columnist and Management Consultant explores the most critical steps to ensuring that the benefits brought by the implementation of a lean culture are still enjoyed and being built upon years into the future. For more information on program topics or registration, please go to www.electrocoat.org /conference or call 800-950-8020.

## April CFCM is a Double Show Issue

April's issue of CFCM magazine will be the show issue for both the American Coatings Show and Conference in Charlotte, North Carolina, June 2-4, 2008, and the SUR/FIN Surface Finishing Show in Indianapolis, Indiana, June 15-18, 2008. The April issue will be distributed from our booth at each show for bonus circulation. The ICE Show scheduled for Chicago in October has been cancelled. The June issue of CFCM will still be our Buyer's Guide issue and will be searchable on-line. Due to tight deadlines this spring, we ask that you make your ad bookings as soon as possible.

**Please contact Pete Wilkinson 416-255-1808**
**pete.wilkinson@cfcm.ca**

## People On the Move

Bill Heise

**Bill Heise, New President and CEO of Debro**

Harold Sher, Chairman and CEO of Amalgamated Metals Corporation PLC and Charles Rowan Managing Director of AMC's North American operations, are very pleased to announce that Bill Heise has been appointed President and CEO of Debro Chemicals.

Heise joined Debro in 2005 as Director of Marketing and has progressively assumed greater responsibility within Debro over the past two years, and in 2007 was appointed Vice President Sales and Marketing. With Heise in a position to succeed long time Debro President Bill Kelly, who had indicated his desire to step back from day to day activities within the company, the company feels that this will ensure a smooth handover.

"The timing of this change suits all parties and the efficient transfer it ensures will be of great benefit to the ongoing business of the company," Debro stated in a recent press release.

Heise brings 29 years of progressive management experience and leadership in the Canadian chemical industry to his new role.

Also at Debro, Bert Papenburg has been promoted to the position of Product Manager - Specialty Chemicals. In his new role Papenburg will work closely with a defined group of Specialty Chemical principals and will be responsible for direct communications on all product related initiatives. He will maintain direct sales

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## Nordson Holds Successful Powder Coating Workshop

*continued from page front cover*

powder spray guns, control units, pumps, nozzles, application techniques and trouble shooting. Customer Service Reps Shane Dignard and Mark Dudley led a hands-on session in the lab after lunch on automatic gun set-up and application technique.Attendees had the opportunity to bring in parts to do test applications.

Day Two featured recovery equipment, grounding and safety with Ken Kreeger and troubleshooting with Paul Kroes, Powder System Specialist followed by more hands on training in the lab. Photos by Pete Wilkinson

Ken Kreeger, Nordson

Art Fordham, Quality Sandblasting and Painting trains in the Nordson Lab in Markham ON.

Tom Toser, Eurovac; Jeff Dailidas, Nordson; A.J. Mekkunnel, DuPont Coating Solutions; Art Fordham, Quality Sandblasting and Painting; listen to Shane Dignard, Nordson explain the proper set up of the manual powder coating control module.

Ken Kreeger, Nordson leads a discussion on the importance grounding, and safety for power coating systems.

Trevor Cook from Inortech Chimie tells Santa he has been good. Santa does not seem to be buying it.

Stan Snopeck, PPG and Andrew Tennant, Canada Colors & Chemicals share a chuckle before lunch.



Elves Urs Hentschel, Pro Form Products and Spence Morris, L.V. Lomas help Santa distribute cheer to the TOSCOT Holiday lunch.

Steve Waters and John Roeleveld of Andicor supervise Larry Ham of UNIVAR acquiring sushi.

## TOSCOT Christmas and New Year Events

The Toronto Society of Coatings Technology has been busy.

On December 4, 2007, several members gathered for a special Christmas Luncheon, during which all in attendance enjoyed a great meal, won a door prize presented by special guest, Santa Claus who got helped by the first two winners who became his elves. Several new toys were brought by guests and donated to Chum City Christmas Wish Foundation.

On January 7, 2008, during its regular meeting at the Airport Marriott in Toronto, TOSCOT heard Adrian George Abel, President, Society of Dyers and Colourists; Chairman, Colour Index Board; Managing Director, Gemini Dispersions, who spoke on the history of pigments used in art, going back to the cave paintings through Egyptian, Greek and Roman art onto Renaissance art and modern pigments.

On Saturday February 23, TOSCOT had a special Spouses' Night at Mysteriously Yours Theatre with a three-course, gourmet dinner complete with colourful characters and a murder to solve.

On Monday, April 7, 2008, TOSCOT is holding its Technical Symposium at the Airport Marriott, 901 Dixon Road (at Carlingview), Toronto, which will encompass the new technological aspects of the four major groups of paints and coatings: pigments, binder, carrier, and additives. Presenting suppliers are: Evonik (formerly Degussa) - Pigment Technology; Reichhold - Waterborne Zero VOC Alkyd Latex Technology; EASTMAN - Solvent Technology and a speaker to be announced on surfactant technology.

Registration begins at 11:00am, followed by a lunch reception. Talks will run until 4:30pm.

*meeting@toscot.org*

Adrian Abel, Gemini Dispersions, presents at the January meeting.

## People On the Move

responsibility at key accounts located in the Eastern Region, however his product management responsibilities will be National in scope. Bert Papenburg has strong technical knowledge in many application areas where Debro's specialty chemicals find use, and the company says he will be a tremendous asset to Debro in both the promotion and development of new and existing business opportunities.


Bert Papenburg

Debro has also announced that Vernon Lo has joined the company in the position of Western Region Sales Manager. Lo is a veteran of the chemical industry in Western Canada and brings 25 years of experience in the coatings, industrial minerals and specialty distribution business. Within this role, Lo will be challenged with developing and carrying out strategies at existing and new customers that will quickly re-establish Debro as a prominent distributor in Western Canada.


Vernon Lo

*www.debro.com*

**Promoted at Allied Photochemical**

Allied PhotoChemical, based in Marysville, MI, a leading manufacturer of UV Paint and Coatings Solutions has promoted Dan Sweetwood from Director of Sales and Marketing to Vice President of Sales & Marketing.

"This promotion is well deserved as Dan has made significant contributions to our key customers and to Allied PhotoChemical," says Michael Kelly, CEO/President. "In addition to his promotion, Dan has been nominated and voted to be an Allied PhotoChemical Board Member."

Allied PhotoChemical formulates and produce of Ultraviolet Light-curable inks, coatings and paints.
*www.alliedphotochemical.com*

**Promotions at Canada Colors**

Canada Colors and Chemicals Ltd., Toronto, ON announces that Paul Macko has been promoted to vice president, chemical distribution. Macko is responsibe for all sales and marketing functions for the company's Distribution Chemicals business. Mark Gerard has been promoted to general manager, specialty chemicals, reporting to Macko. Gerard is responsible for the Coatings, Polymer Additives Food Ingredients and Fine Chemicals business units. Rachel Laberge has been promoted to sales manager, coatings and polymer additives, reporting to Mark Gerard.
*www.canadacolors.com*

**New at Wagner**

Wagner Systems, Inc., Carol Stream, Illinois, has hired J.B. Graves as Regional Sales Manager for the Central Southeast territory. Graves has over 20 years experience in the paint and powder coatings industry. Based in Ohio, he will be responsible for sales in the states of Virginia, West Virginia, Tennessee, North and South Carolina, Kentucky, Delaware, Maryland, Southern Indiana and Southern Ohio.


J.B. Graves

*www.wagnersystemsinc.com*

**Q-Lab Corporation Adds U.S./Canada Sales Position**

Justin Kowallek has joined Q-Lab Corporation's Sales and Marketing staff as a sales representative serving the U.S. and Canadian markets. He is based at the company's headquarters in Cleveland, Ohio.

Kowallek previously worked for CEC Combustion Services Group, where he was responsible for client relationship management, sales training and support, parts management, as well as various marketing functions. He is a graduate of Baldwin-Wallace College.


Justin Kowallek

*www.q-lab.com*

## Company News

**Akzo Nobel Proposed Management Changes as Part of ICI Acquisition**

Akzo Nobel N.V. has announced several proposed changes to its Board of Management and Supervisory Board in advance of January's expected completion of the acquisition of Imperial Chemical Industries PLC (ICI). A number of key roles for ICI's executive team, who will support the integration with Akzo Nobel, have also been confirmed. The management changes will be proposed at the Annual General Meeting of Shareholders, to be held on April 22, 2008.

Peter Ellwood, currently Chairman of ICI, will be proposed to join the Supervisory Board of Akzo Nobel. Prior to joining the Board of ICI, Peter Ellwood was Group Chief Executive of Lloyds TSB Group plc and Chairman of Visa International.

Hans Wijers will continue in his role as the Chairman of the Board of Management, leading the transformation of the company. As the successful integration of the Decorative Coatings businesses of ICI and Akzo Nobel is the crucial element in the transformation, he will personally oversee the integration of these businesses. Wijers will hand over his current responsibility for the Industrial Coatings activities to Leif Darner.

Keith Nichols, presently Senior Vice President for Finance, will be proposed for appointment to the Board of Management to succeed Rob Frohn as the CFO of Akzo Nobel, effective May 1, 2008. Nichols played a key senior role in structuring, financing and executing the acquisition of ICI.

Rob Frohn will take over as the Board of Management member responsible for all Chemicals units as of May 1, 2008. Those units are expected to include ICI's Specialty Polymers and Regional and Industrial businesses.

Leif Darner, currently the Board of Management member responsible for the Chemicals and the Decorative Coatings business, will take over as the Board member responsible for all Industrial Coatings businesses as of January 1, 2008, including the current ICI Packaging Coatings business. Darner will also take responsibility for Technology and Sourcing. He will continue to be the Board member who heads the Chemicals' activities until April 30, 2008, when Rob Frohn will take on those responsibilities.

John McAdam (CEO of ICI) will take lead responsibility for National Starch and ICI's corporate center during the restructuring. He will continue those responsibilities for approximately six months following the completion of the acquisition.

Alan Brown (currently Chief Financial Officer of ICI), Andy Ransom (currently General Counsel, Executive Vice President Mergers and Acquisitions and Company Secretary of ICI) and Rolf Deusinger (currently Executive Vice President of Human Resources of ICI) will support John McAdam in these tasks and at the same time support the senior Akzo Nobel leadership team in the transition of businesses and functions to Akzo Nobel.

David Hamill (Chairman and CEO of ICI Paints) will take the responsibility for managing the Decorative Coatings businesses of Akzo Nobel and ICI and play a key role in the integration. Hamill will perform these responsibilities for a period of 12 months after completion of the acquisition.

Rinus Rooseboom, Manager of Akzo Nobel's Decorative Coatings business unit, will, together with David Hamill, support Hans Wijers in the integration of the Decorative Coatings businesses of Akzo Nobel and ICI. He will do so until he retires on April 1, 2008. Rooseboom will report to Wijers.

**MultiChem Distributes Bomar**

Bomar Specialties Company is very proud to announce the selection of MultiChem Inc. as exclusive distributor in Canada for its UV/EB Curing Advanced Performance Oligomer Products.

Bomar Specialties has been supplying oligomers for energy curing applications since its inception in 1988. MultiChem Inc. is a full service Canadian chemical distribution firm with offices in Quebec, Ontario and Alberta, with warehouses and terminals located across the country and is a leading independent Canadian specialty chemical distributor to the coatings, adhesives, sealants and elastomers market segments. MultiChem, a wholly-owned subsidiary of Atrium Innovations, is also a recognized leader in life sciences and industrial chemical commodity markets.

**Benjamin Moore to Close Burlington, ON, Manufacturing Plant**

As of the middle of this year (2008) Benjamin Moore & Co. Limited, will cease its manufacturing operations in Burlington, Ontario, Canada. The Burlington plant, which began operations in 1975, will be decommissioned by June, 2008. The production of the alkyd (i.e. oil-based) paint products currently being made at Burlington will be moved to other Benjamin Moore manufacturing facilities in the United States.

According to the company, the decision to close the plant was made due to the consistently steady decline in sales of alkyd paint as a result of increasingly stringent government regulations as well as the market's demand for more water-based products.

With 46 employees at the Burlington plant affected by the announcement, the company says it will ensure that those employees are supported throughout the transition to new employment. Opportunities to transfer to other positions within company, either manufacturing or non-manufacturing, are also a possibility for a small number of applicants, the majority of which would require re-location to other areas in Canada. The company operates six other manufacturing facilities in North America, one in Montreal, Quebec, Canada, the other five are located throughout the United States. No decision has been made as to the disposition of the Burlington facility and property.

Benjamin Moore & Co., a Berkshire Hathaway company, was founded in 1883 and is one of North America's leading manufacturers of premium quality paints and stains. Benjamin Moore products are sold through a network of authorized, independent retailers.
*www.benjaminmoore.com*

**Atotech New Lab Facilities**

Construction has begun at Atotech Canada Ltd. on a new Technical Centre for Corrosion Resistant Coatings (CRC). The new Technical Centre for CRC will be added to the present Canadian Head Offices location at 1180 Corporate Drive in Burlington, Ontario and is scheduled to be completed and operational in the late spring of 2008. The Technical Centre will be a two-storey structure occupying 7500 square feet (697 square meters) and include a "state of the art" plating line for testing different zincs, zinc alloys, passivates, sealers and other CRC applications in a real world scenario. Both rack and barrel plating application methods can be replicated.

"The lab's plating line will let us provide custom plating samples, simulate production runs and evaluate new processes and chemistries while also allowing us to study plating capabilities, process optimization and troubleshoot problems in an in-house, controlled environment. The "Tech Centre" will also serve as a training facility for our own employees, our tier 1,2 & 3 customers and our potential customers", said Atotech Canada Managing Director, Mr. Gene Torcoletti.

The upper floor in the new building will house the latest analysis and testing equipment and control chambers for neutral salt spray testing, cyclic testing, torque, tension and thickness testing (XRF and eddie current methods) and a host of other analytical procedures. The lower floor's Material Science Laboratory will have advanced microscopy and SEM/EDX equipment to study metallography and plating properties such as elongation, ductibility and thickness, along with Hull Cell test facilities for the evaluation of bath & chemistry properties.

"We'll now be able to provide customers with unparalled quality control and analytical services and do it all right here", said Mr. Torcoletti. To find out more about Atotech's commitment to customer care and our new lab facilities and how we can serve you, contact Atotech Canada today.

**Dempsey Corporation Top 25 Best Award**

Dempsey Corporation is pleased to be named among the Top 25 Best Small and Medium Employers in Canada. The study, now in its fourth year, is published in the Globe and Mail.

Becoming a Top Best Small and Medium Employer is a very detailed and competitive process. This national awards program recognizes top employers with between 50 and 400 employees. This study mirrors the renowned Best Employer in Canada initiative run by partner, Hewitt Associates; however, caters to smaller businesses.

The rankings are primarily determined using the results from Employee Opinion Surveys. Here, 17 key engagement drivers are detailed and analyzed. The evaluation process also includes the assessment of organization practices and perspectives from the leadership team.

Study partners include Queen's School of Business, Queen's Centre for Business Venturing and Hewitt Associates. More information about the Best Small & Medium Employers in Canada is available online at *http://business.queensu.ca/qcbv/sme.*

**Cefla Finishing Group Announces The Purchase Of Cattinair**

Cefla Finishing Group has acquired Cattinair Finishing with the deal finalized through an agreement with Dantherm Filtration. The agreement was signed at the historical Cattinair Finishing principal offices based in Pont de Roide (France).

The deal will be effective beginning December 1st, 2007.

Cattinair Finishing was started in 1979 and has grown successfully since. Cattinair has achieved significant market share in large part due to the manufacture of rotary sprayers, and in particular, the Rotoclean, a key product of their production program.

Cattinair Finishing will continue its activity in the field of raised panel coating/spraying, as a separate brand and business unit, with principal offices in Pont de Roide, France, and Thomasville, NC, USA. Cattinair will remain focused on continuing product development and growth of the rotary spraying business and will maintain test labs and showrooms in France and United States.

The current sales organization composed of agents and dealers will be maintained and further developed. This arrangement will ensure the constant and organic level of collaboration in this area to continue.

Additionally, the acquisition of Cattinair Finishing will allow Cefla Finishing Group to take a further step towards increasing its market share growth in the Wood Finishing sector.

**DuPont CoatingSolutions, American Trim Collaborate**

DuPont CoatingSolutions and American Trim have teamed up to promote an innovative coating technology. American Trim recently took delivery of a physical vapor deposition chamber (PVD) that allows for the processing of a chrome-like finish without the use of hexavalent chrome. The PVD process employs a base powder coating supplied by DuPont, which serves as a protective, functional layer and smoothes out the surface. Therefore, no sanding or buffing is required on rough parts, like castings. The PVD chamber is utilized to deposit the very thin layer of metal. Parts are then coated with a clear acrylic topcoat for protection of the metal layer and added durability.

This technology represents added potential for coatings for numerous industries. The PVD process was primarily designed for decorative finishing in the heavy duty truck and automotive industries, but there is added interest from other markets such as appliances, recreational vehicles, furniture and building products. PVD coating provides a viable alternative to the traditional method of applying chrome and electroplating. In most instances, the result is a less expensive and better performing, chrome look.

John Swigard, director of marketing, American Trim said, "We are very excited to partner with DuPont, who clearly sees the potential in this market and we look forward to furthering this relationship between us as well as our current and future OEM partners. This represents another step in our dedication to expand this technology with development programs and to further the knowledge base on new, larger part capabilities."

Both companies, considered to be quality leaders in their fields, believe this collaboration comes at a favorable moment as the market looks for more economical and sustainable solutions to their coating needs.

"This agreement reveals the commitment, from

both of our organizations, to the development of new technologies for our new and existing customers and the various industries we service," said Dan Paulus, DuPont area manager.

American Trim will take advantage of co-branding opportunities with DuPont as a member of its Star CoaterSM Program.

**Tronox LLC (formerly Kerr McGee)**
Debro Chemicals has been appointed the authorized distributor in Western Canada for all grades of "TRONOX" Titanium Dioxide Pigments. Debro has successfully represented TRONOX TiO2 in Eastern Canada for several years.

**Zemex Industrial Minerals**
With the recent acquisition of Zemex Industrial Minerals by General Chemical, Debro Chemical will take on an expanded role of representation in Canada that will include several key accounts that had previously been serviced directly by ZIM. Zemex Industrial Minerals North American operations include; Suzorite Mica and Zemex Attapulgite and Kings Mountain Mica.

**Imerys Performance Minerals**
Imerys Performance recently announced that the company will reinstate several high performance engineered calcined clays produced at their facilities in Dry Branch and Sandersville, Georgia. Many of these products under the trade names Glomax, Polestar and Neogen were used extensively in many architectural and industrial coatings formulations. Imerys Performance Minerals products are distributed in Canada by Debro Chemicals.

**Dynamix ISO**
As of January 12, 2008, Dynamix Incorporated achieved ISO 9001:2001 accreditation. Dynamix Inc. operates in Markham, ON and provides chemical compositions to the metal finishing and general industrial processing sectors. The primary focus of Dynamix Inc. is the design of chemical specialities with manufacturing, toll blending, packaging, distribution & complete laboratory facilities.

**BASF declares end to TDI allocation in North America**
BASF has ended the allocation for toluene diisocyanate (TDI) products in North America, effective December 1, 2007. An allocation was initially declared by BASF on November 20, 2007, due to a shortage of a key raw material at its Geismar, Louisiana plant.

**Dow Epoxy Completes Systems Acquisitions**
Dow Epoxy has completed the acquisitions of three epoxy systems formulators - UPPC AG in Germany, and GNS Technologies and POLY-CARB Inc. in the United States.

"We are pleased to complete the acquisitions and add such high-performing businesses to our Epoxy Systems portfolio," said Pepe Carnevale, global business director for Dow Epoxy Systems.

Dow Epoxy Systems and its affiliates focus on applications in civil engineering and infrastructure, composites, wind energy, and other industries.

"We are pleased to welcome UPPC, GNS and POLY-CARB employees onto the Dow Epoxy Systems team and look forward to the success we will achieve together," said Carnevale.

**New Univar Specialty Division**
Willy St Cyr, Regional Vice President, Eastern Canada for Univar Canada Ltd., announced in early September the formation and launch of Univar Specialties. This new national business group will focus on promoting technically differentiated specialty chemicals in the coatings/inks, adhesives, sealants and elastomers (CASE) markets. John Egoff, Business Manager for Univar Specialties is heading this new venture. The structure of this specialty division, includes technical specialists located across Canada.

**Canadian Government Supports Integran Development Of Nanometal-Polymer Hybrid Materials**
Integran Technologies Inc., has received support from the National Research Council Canada Industrial Research Assistance Program (NRC-IRAP) for the company's efforts to accelerate the development and industrial implementation of advanced nanometal-engineered polymer hybrid components for the consumer electronics packaging industry.

The company says that NRC-IRAP support will be focused on achieving production-readiness for Integran's patent-protected nanometal technology platform to enable the production of next-generation packaging systems for consumer electronics. NRC-IRAP provides a range of both technical and business oriented advisory services along with potential financial support to growth-oriented Canadian small- and medium-sized enterprises. Working directly with these clients, NRC-IRAP supports innovative research and development and commercialization of new products and services.

Integran's affiliated company in Canada is Morph Technologies, Toronto, ON, which is focused on advanced materials solutions for the automotive sector. *www.integran.com.*

**Air Products Sells Interest in Polymers Joint Ventures**
Air Products, has signed a definitive agreement to sell its interest in its vinyl acetate ethylene (VAE) polymers joint ventures to Wacker Chemie AG, its long-time joint venture partner. As part of the agreement, Air Products will receive full ownership in the Elkton, MD, and Piedmont, SC, production facilities and its related businesses, plus cash considerations of $265 million. The sale is part of Air Products' previously announced portfolio-management activities intended to make a more-focused, less-cyclical and higher-growth company.

**Sherwin-Williams Acquires Flex Recubrimientos**
The Sherwin-Williams Co. has announced it has acquired certain assets of Flex Recubrimientos, Acabados Automotrices and related companies. The Mexico-based automotive coatings manufacturer and distributor will join the Sherwin-Williams Automotive Finishes Subsidiary.

Headquartered in Monterrey, Mexico, the privately owned companies are manufacturers and distributors of automotive after-market body fillers, putties, primers and other vehicle refinish products.



## CALENDAR OF INDUSTRY EVENTS 2008

**March 26-28:** ACSeries Nanotechnology in Coatings Conference:"Emerging Applications, Caribe Royale Resort, Orlando, FL, education@coatingstech.org

**April 7:** TOSCOT Technical Symposium, Airport Marriott, Speakers include Evonik (formerly Degussa) - Pigment Technology; Reichhold - Waterborne Zero VOC Alkyd Latex Technology; EASTMAN - Solvent Technology and a Speaker on surfactant technology TBA. meeting@toscot.org

**May 4-7:** RadTech UV/EB Technology Conference & Expo 2008 Lakeside Center at McCormick Place, Chicago, Illinois, www.uveb2008.com

**May 5:** TOSCOT Annual General Meeting, meeting@toscot.org

**June 2-5:** American Coatings Show and Conference 2008, Charlotte, NC, *www.american-coatings-show.com*

**June 16-18:** SUR/FIN 2008, Indiana Convention Center, Indianapolis, Indiana, *www.nasf.org*

**September 20-23:** CPCA Conference Ottawa/Gatineau, Hilton Lac Leamy, *www.cdnpaint.org*

**September 23-25:** Coating 2008, Indiana Convention Center, Indianapolis, IN. *www.thecoatingshow.com*

**September 23–25:** Canadian Manufacturing Week, co-located with Weld Expo Canada and Metal Finishing Expo Canada, International Centre, Toronto, ON. *www.smecanada.ca*

*continued from front page*

the electronics, medical and entertainment markets.

Basically, UV curing has gone from applications:

- On wood and paper to metal and plastics
- Indoor to exterior
- Hard and rigid to flexible and elastic
- Only on clear to use on pigmented systems,
- Plastic substrates to 3-D objects
- Macro manufacturing to micro-manufacturing

Recently successful UV solutions that overcome the barriers to converting from current solvent-based processes suggest that there should be some new opportunities in industrial markets that were in the past closed to UV. However, even with proven results the path may not be easy. Harbourne says incumbent suppliers are aware and nervous about the benefits offered by UV and are making their own strides in improved product performance, reducing the impact of UV and protecting their customer base.

The shifting in manufacturing from the US, and from some areas of Europe, to the Far East may have eased. The growth in UV in the US and Europe has remained relatively stable at 5.3 per cent and 4.4 per cent respectively, compared with 8.3 per cent for China and the rest of the world.

Harbourne concludes by calling the UV outlook for 2008 and beyond "cautiously optimistic". ■


BASF Canada Inc. was presented with a Level III Health and Safety Achievement Award. This award recognizes the company's commitment to health and safety excellence.

L-R: Mark Thibault (Environmental Health & Safety Coordinator, BASF), Irina Baluyot (Quality Manager, BASF Canada Inc.), Theresa Umbenhower (Occupational Health Nurse, BASF Canada Inc.), Guido Broche (Site Manager, BASF Canada Inc.), Maureen Shaw (President & CEO, IAPA), Teri Stewart (Applications Supervisor, BASF Canada Inc.), Rick Mittag (Union President, BASF Canada Inc.), Doug Innes (Technical Manager, BASF Canada Inc.)

Photo courtesy of BASF Canada Inc.

**BASF Canada Inc. Receives Health And Safety Award**

The Industrial Accident Prevention Association (IAPA) presented paint and coatings manufacturer BASF Canada Inc. of Windsor, ON, with a Level III Health and Safety Achievement Award on Friday, February 8, 2008. IAPA President & CEO, Maureen Shaw presented the Level III Achievement Award to Environmental Health & Safety Coordinator Mark Thibault and Site Manager, Guido Broche.

**Henkel Expands Trial of Bonderite Coating**

After a successful trial, Henkel, Madison Heights, MI, has expanded testing of its new Bonderite conversion coating process. The testing will take place at the Ford Motor Co. Twin Cities manufacturing facility in St. Paul, MN. Henkel's new process is the automotive industry's first non-phosphate conversion coating for multi-metal bodies. The technology significantly reduces costs and improves the efficiency of vehicle assembly pretreatment operations while reducing the environmental impact.

The new coating eliminates the problems associated with the conventional zinc-phosphate pretreatments. It eliminates pretreatment sludge, reduces landfill requirements and simplifies wastewater treatment. The coating is free of phosphate, VOC and CO2-equivalent emissions resulting in minimal environmental impact. It is applied at room temperature, reducing utilities and natural resource requirements. The company says with this coating, the pretreatment footprint can be reduced 20 to 40 per cent in a brownfield site as well as in a greenfield operation.

## Pricing Briefs

**Dow Announces Price Increases**

The Dow Chemical Co. has raised the off-list price for isopropanol by $0.03 per pound in North America effective February 1, 2008, or as contracts allow.

Dow has increased the price for all of its Polyurethane Systems and Specialty Prepolymers products by U.S. $0.10 per pound in the United States and Canada. Customers interested in learning more about this price increase should contact their local Dow sales representative.

Dow Epoxy, a global business unit of The Dow Chemical Co. and its affiliates (Dow), has announced list and off-list price increases for its line of epoxy resins and curing agents in North America.

The increases, effective January 1, 2008, or as contract terms allow, are as follows:

Liquid epoxies (resins, blends and solutions), D.E.R.™ 300 series: U.S. $0.06/lb;

Novolac epoxies (resins and solutions), D.E.N.™ 400 series: U.S. $0.06/lb;

Novolac epoxies, D.E.N. 431: US$0.08/lb;

Brominated epoxies (resins and solutions), D.E.R. 500 series: U.S. $0.06/lb;

Solid and solid-solution epoxies, D.E.R. 600 series: U.S. $0.06/lb;

Glycol epoxies (resins and blends), D.E.R. 700 series: U.S. $0.06/lb; and

Epoxy curing agents, D.E.H.™ 20, 30, 50 & 80 series: U.S. $0.06/lb.

All other terms and conditions of sale for these products remain unchanged. Dow Epoxy, has also increased list and off-list price increases for Allyl Chloride of U.S. $0.05 per pound in North America (including Mexico).

UCAR Emulsion Systems (UES), a business unit of The Dow Chemical Company, has increased the list and off-list prices on its emulsion products and rheology modifiers as contracts allow, for all North American customers. The increase is US$0.03 / wet pound for all products at or below 55 per cent solids and US$0.04 / wet pound for all other products in all chemistries including acrylic, vinyl acrylic, styrene acrylic, and styrene butadiene latexes, EVOCAR latexes, NEOCAR

*continued on page 35*

# Economic and Process Qualification

## for Best Implementing a Successful UV Project

By Dan Sweetwood and Michael Kelly

¶Three critical factors must be realized and understood before implementing any Ultra Violet (UV) project.

1. **Economic Qualification**
   – Does the project have an acceptable economic Return on Investment (ROI)?
2. **Process Qualification**
   – Is the project technically and process feasible?
3. **Project Implementation**
   – How best to Implement the UV Project?

For a successful Ultraviolet (UV) project implementation, there must be an acceptable Return on Investment (ROI) upfront. Once the economic return has been justified, you must have a process qualification review to insure the project is technically and process feasible. Upon completion of the Economic and Process Qualification, you must implement the project – Best Practices to Design and Implement Phase of the UV Project.

This article will address all three factors and provide you with a foundation and roadmap for justifying your UV Project and the best means to evaluate and optimize the process towards successful implementation.

### ECONOMIC QUALIFICATION:

Question: Does the project have an acceptable economic ROI?

It is critically important to understand the full economic value statement for implementing UV technology in your coating process.

All projects are typically justified based on ROI, but UV technology offers an additional environmental benefit:

UV=Roi+e - Return On Investment and the Environment.

You can also define the Roie, Economic Value of UV as: Faster, Smaller and Cleaner.

Faster…Line speed, coating cure and coating optimization.

Smaller…Floor space, work-in-process, energy consumption, maintenance costs, capital equipment cost and quality costs.

Cleaner…Zero VOCs, no HAPs/NVPs, reduced reporting, and improved health and safety.

Accurate costing data is a critical part of the ROI justification process. The next phase of this article will provide you a breakdown

and description on the economic savings available with UV implementation.

## FASTER…LINE SPEED

Faster line speed, faster coating cure and faster coating optimization are directly correlated to:

- Increased production capacity;
- Faster through-put;
- More production flexibility; and
- Potentially lower piece price.

All these items are easy to measure financially, and typically have a major dollar impact. Productivity is everything and the ability to increase line speed is critical to improving productivity. UV coatings allow you to increase your line speed and secure the benefits of increased productivity. It is important to have the ability to measure the benefits of increased production and there is a need to understand per unit costs.

## COATING CURE

Some plastics cannot be heated and some substrates require immediate curing after coating. For these situations UV technology may be the only solution. In addition, cycle time can be cut dramatically thus allowing much better response to customer needs. The financial gain is more difficult to measure and the measurement here is specifically based on application.

## BLACK UV COATING ON CYLINDER

**Substrate:** Metal
**Application:** HVLP Spray
High Volume/Low Pressure Spray
**Technical:** High Temperature will cause cylinder seal failure
Economics Elimination of
Elimination of IR Oven
Elimination of Work in Process
Improved Quality/Less waste

## UV CLEAR COATING ON OUTDOOR LOG CABIN

**Substrate:** Wood
**Application:** HVLP–High Vol/Low Press Guns
**Technical:** Substrate temperature sensitive
**Economics:** Quality / Immediate inspection
Work-in-Process reduction

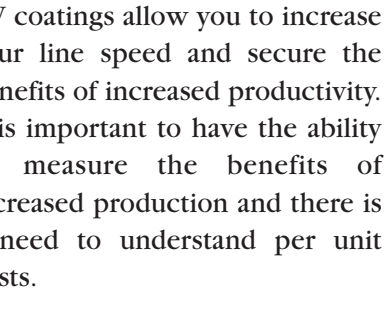


Figure 1

Figure 1 and 2
- Examples of Substrate-Sensitive Substrates

Figure 2

## COATING OPTIMIZATION

Coating optimization has everything to do with coverage and reclaim. With 100 per cent solids, UVcoating coverage is 1,604 sq ft at 1 mil with no evaporation. Reclaim can also be achieved using a variety of industry-proven techniques. Reclaiming coating can provide significant savings, driving coating optimization in the upper 90 per cent range. The financial gain can be measured in coating usage and calculated to a per-part cost of coverage.

## SMALLER… FLOOR SPACE

Spray systems typically consume the same floor space across coating technologies. UV-light systems are typically much smaller, 10 to 15 feet in length, compared to conventional ovens. Air-dry solutions typically require more floor space and/or overhead. Therefore, financially one must measure the following:

Need to understand your floor space costs/typically per square /foot; and

Comparisons made between the different coating technologies.

## UV GRAY COATING ON 20LB PROPANE TANK

**Substrate:** Cold Rolled Steel
**Application:** Bell Atomizer / HVLP Gun
**Technical:** Durable coating over weathered powder
Economics: Quality/Immediate inspection
Work-in-Process reduction
Minimal Floor Space

## WORK IN PROGRESS (WIP)

Work-in-process has associated costs because it ties up capital. The larger your WIP inventory, the larger your quality risk. That is, by the time you figure out that there is an issue, your entire WIP may be affected. To conduct a good financial assessment you need to: Understand your work-in-process costs; know how much inventory is tied up "hanging around"; and understand how much can be saved by reducing the cost of a quality "incident".

## ENERGY CONSUMPTION

Energy costs continue to be volatile year-to-year. UV-lighting technology offers fast shutdown and start-up. Savings from reduced energy usage fall straight to the bottom line. UV Lights can be turned on and off easily, whereas ovens, for example, take time to shutdown and to start up again. To financially measure the gain one needs a true financial understanding of the energy costs per KW and must include all involved equipment, i.e., the whole application chain from pre-treatment to cleaning to application and curing.

## MAINTENANCE COSTS

Typically, UV Systems are much smaller, using fewer conveyors, less mechanics, but UV-lights require a regimented maintenance schedule for cleaning reflectors, measuring light output, changing filters, and rotating bulbs (arc lamps). One needs to understand the true manpower and process costs that are associated, and measure the costs of extra conveyor and continued maintenance. It is good practice to follow the standards and procedures defined by the manufacturers. A well designed process will be significantly less to maintain than a poorly designed process.

## CAPITAL EQUIPMENT COSTS

UV systems typically cost less than any oven-based curing technology and typically require shorter conveyors, less material handling, and less mechanics overall. To measure the financial advantage, one needs to compare competitive technology bids and understand the true costs of additional material handling equipment. This needs to be done for non-oven-based technology and air dried systems.

## QUALITY COSTS

With UV technology quality problems are immediately noticed and addressed. With other technologies you must wait until the product is dry and/or fully cured before testing. Once you get around to testing for quality compliance, you may have a great deal of scrap. Having immediate feedback on the quality of your finished product will certainly lower quality costs.

## CLEANER… ZERO VOC, NO HAP/NVP'S

100 per cent-solids UV systems typically have zero VOCs, no HAPs and no N-vinyl pyrrolidone's. When reviewing your UV coating choice, make sure you verify compliance. Exempt solvents still have VOC's…100 per cent solids is defined as zero

solvents. The financial assessment may be conducted by measuring Workman's Compensation claims and by measuring costs incurred in eradicating VOCs.

## REDUCED REPORTING

With 100 per cent-solid UV systems, there are many benefits, the main benefit being the ability to

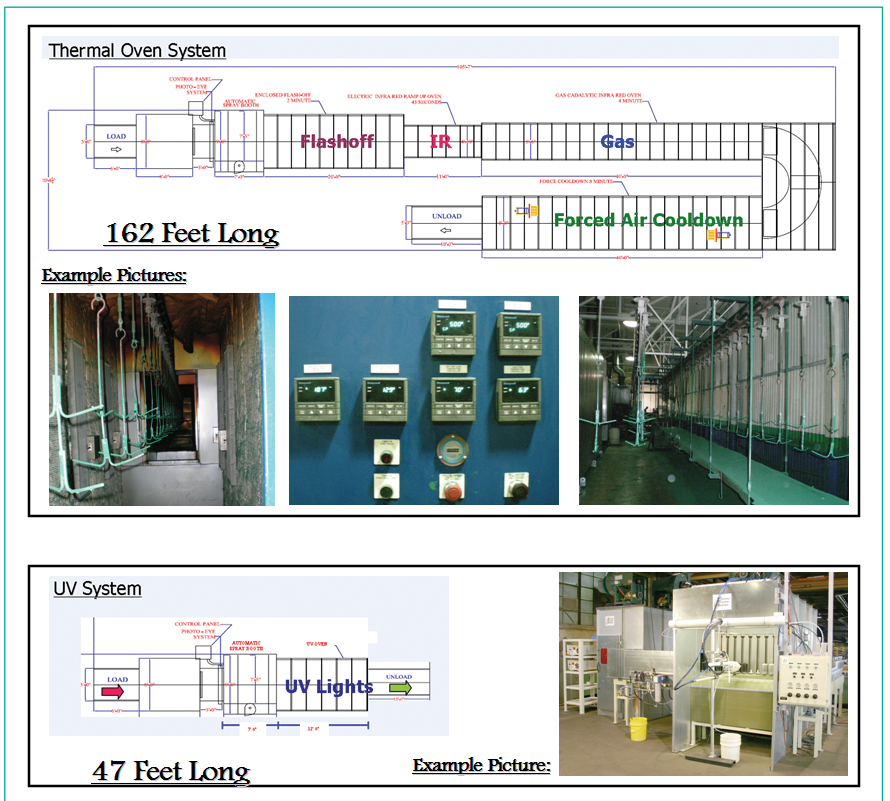



Figure 3

Figure 3 – Thermal Oven System V's UV Systems

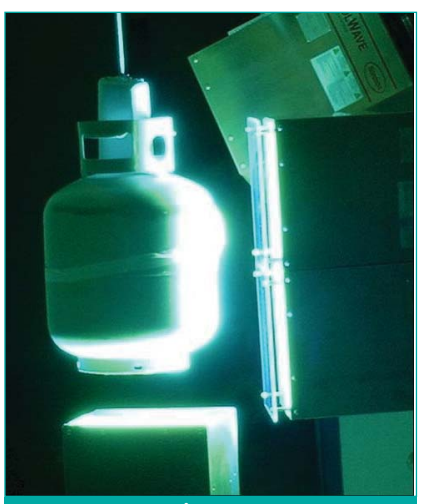


Figure 4

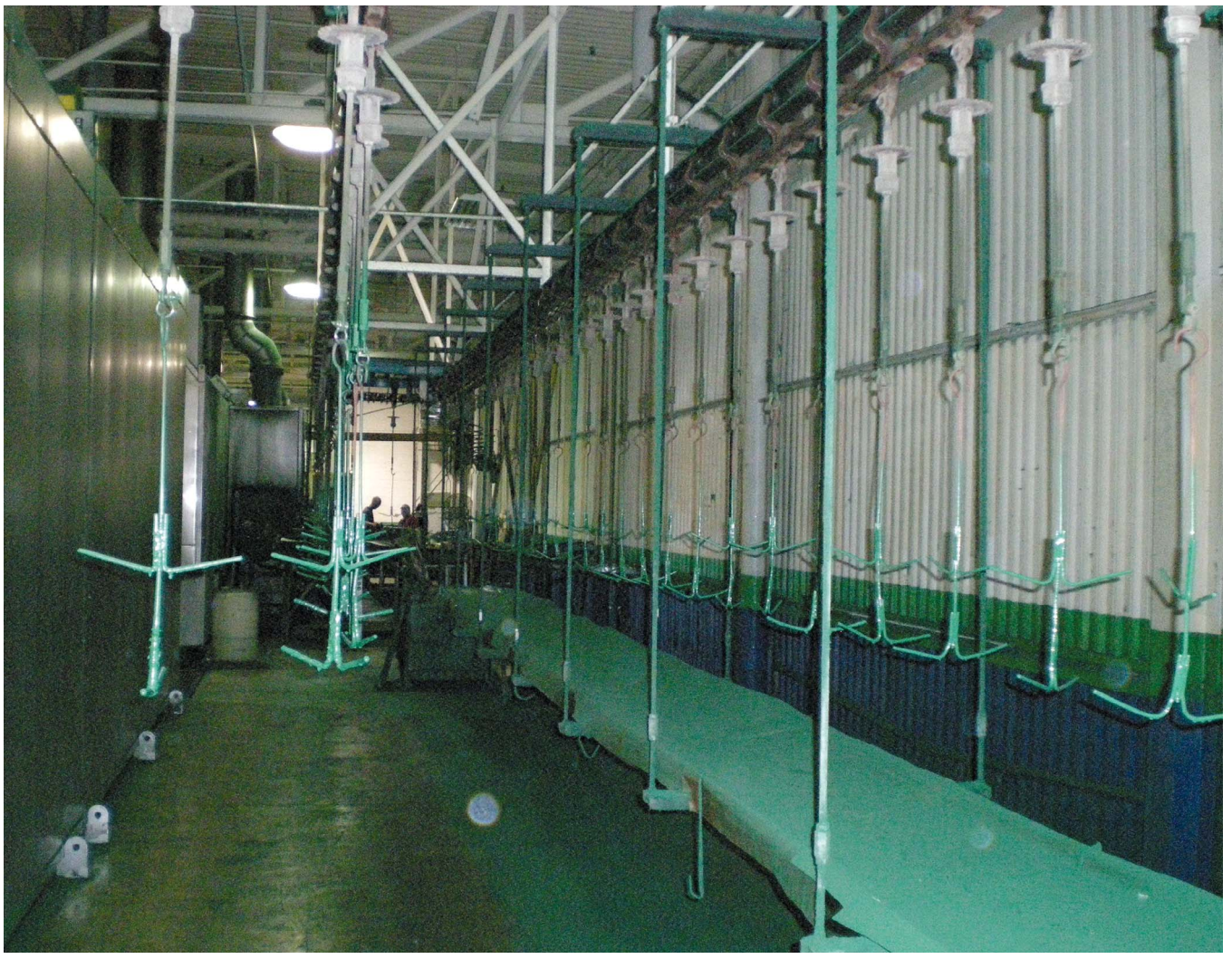
Figure 4 – Example of 20 lb Propane Tank /Refurbishment Business

shut down specific VOC-related equipment and eliminate specific VOC reporting requirements. The advantages can be measured in terms of equipment shutdown and reduced usage (i.e., VOC scrubber costs can be calculated) and by the reduction or elimination of VOC reporting to specific government agencies.

## IMPROVED HEALTH AND SAFETY

With 100 per cent-solid UV Systems, you will eliminate the Health and Safety issues typically associated with solventborne paint systems. However, sound safety practices still need to be followed when using UV Coatings. Again this can be assessed by measuring worker time away from work, compensation claims and external environmental impacts.

Understanding the true costs of each area is critical to your ROIE – Return On your Investment and the Environment.



Example of thermal oven conveyer system

## PROCESS QUALIFICATION

Question: Is the project technically and process feasible?

It is critically important for customers, integrators/equipment suppliers and formulators/paint suppliers to understand what is required for the successful process qualification of a UV project. In reality, these requirements could apply across other coatings technologies, but this article will focus on UV.

The customer, integrator/equipment supplier and the formulator/paint supplier must be communicating. This is very important and regular project reviews should be taking place.

## THE CUSTOMER

The customer should have done work up-front and understand UV coating technology, such as their process, product specification requirements, testing requirements and all other related issues.

The customer must set the basic stage that documents the process-related variables such as line speed requirements, required production capacity, available footprint, preceding process handling (i.e. pretreatment)and existing post-process steps (what happens to the part after it's coated).

These requirements set the table for the equipment supplier and coating formulator and are required for success.

## THE FORMULATOR

The formulator must request and understand the customer's coating specification and testing requirements, type of substrate, substrate pre-handling / cleaning, required product rate, target price per piece, coating usage and all other related issues.

## THE INTEGRATOR EQUIPMENT SUPPLIER

The integrator/equipment supplier should also fully understand the part shape, the method of part presentation, the target coating thickness, substrate pre-handling / cleaning, required production rate, target price per piece, project ROI and all other related issues.

## THE FORMULATOR AND EQUIPMENT SUPPLIER - TOGETHER

Given customer requirements, the equipment supplier and formulator must work together to define the right project methodology including the following: Application equipment (i.e., spray technology), material handling, part presentation, film thickness, cure energy requirements, dwell time (if needed), proof of concept testing and last but not least accurate documentation, which is critical.

The Process Qualification Stage requires an honest assessment of requirements and capabilities, must result in a win for all parties or the project can't move forward, and is the absolute best time to recognize a bad project, which saves everyone time and money.

The equipment supplier, coating formulator and customer need to communicate early in the project cycle to avoid big surprises later. Success depends on a well-documented and well-communicated project process qualification plan.

## PROJECT IMPLEMENTATION

Question: How best to Implement a UV Project?

In the Implementation Stage, it is very important to carry out the project as previously defined. Issues should be manageable if the process qualification phase was completed correctly.

## THE CUSTOMER

The customer should review previous requirements and resist changing them! These would include the following: Line speed requirements, required production capacity, available foot print, preceding process handling (i.e. pretreatment) and existing post process steps (what happens to the part after it's coated). Changes at this point to these process-related variables can be very expensive. Previous documentation is important for all parties.

## THE INTEGRATOR/EQUIPMENT SUPPLIER

Integrating the project is the responsibility of the integrator/equipment supplier. It is critical that the following items are addressed accordingly: Manage lead-time issues, act as a conduit between sub-suppliers, manage the installation schedule, hold the customer accountable and coordinate final trials and start-up.

A good equipment supplier/integrator will make all the difference at this stage. A valuable lesson: "You get what you pay for!"

## THE FORMULATOR

The role of the formulator is to assist with the integration by directing and ensuring the following: Clarify issues for the equipment supplier and customer, ensure that the part quality is the same as the previous trials (a common issue), be available for onsite trial and rely on previous documented testing as guidance.

The formulator's job should be finished at this stage. Poor implementation will result in a "miracle" request, "Can you make your coating cure faster with half the energy?"

## CONCLUSION

In conclusion, three critical factors must be realized and understood before implementing any UV project.

Economic Qualification – The ROI must offer realistic payback

Process Qualification – The Process must be technically and process feasible.

Project Implementation – The Project must be implemented correctly with lessons learned as part of the process. ■

*Dan Sweetwood is director of sales and Michael Kelly is CEO/president of Allied Photochemical, Kimball, Michigan.*

# UV Wood Finishing

By Greg Tojan

## THE NATURE OF WOOD

Wood in its many forms, lumber, plywood, particle board and engineered woods

(MDF) are the primary substrates used for manufacturing household and office furniture, kitchen cabinets, paneling, moldings and many other items, which makes wood the most useful natural substrate on this planet.

For all practical purposes, we may classify woods used in wood finishing into three broad categories.

Lumber from broad leaf trees – hardwoods lumber from coniferous (cone bearing) trees, softwood and engineered woods.

Lumber from broad leaf trees, such as oak, mahogany and walnut-contain large vessels and therefore are very porous. When the lumber of this trees is cut and planed at the mill, either as solid cuts or veneer, the tubular cells are ruptured, leaving minute troughs running lengthwise requiring filling.

Soft woods, such as pine, cedar and redwood are devoid of vessels, and therefore, are grouped as non-porous.

Other woods such as basswood, while being extremely soft to the touch, is classified as a hardwood.

One aspect affecting the nature of wood, is the age of the tree's. Old growth lumber,

200 – 300 year old species, are substantially different in density than the same trees harvested at about 50 to 70 years.

Understanding the nature of wood is fundamental to understanding the interaction of wood properties with wood finishing processes.

## THE BUSINESS

Environmental regulations, waste disposal regulations and health & safety issues combined with soaring labor costs are just some of the many issues facing North American wood finishers. To meet those challenges it becomes essential to use coatings that are less labor intensive, are applied and cured fast to facilitate high speed production, and are environmentally friendly. UV curing technology provides the answers to many of those issues.

## THE UV CURING PROCESS

Also called "photopolymerization " the Ultraviolet (UV) curing process is a photochemical reaction. When exposed to UV energy, photoinitiator chemicals in the coating start a rapid free radical generation, crosslinking the liquid coating into a solid.

This chemical reaction occurs between two basic components of the coating – monomers, which are low molecular weight polymers, and oligomers, which are higher molecular weight polymers.

The main properties of a crosslinked coating come from the various types of oligomers, which also constitute the backbone of the formulation There are essentially for major types of oligomers available to the wood finishing industry. They include; urethene, epoxy, polyester acrylates, and unsaturated polyesters. Each offers distinct advantages, which can be tailored for a particular application.

While the oligomer polymer is the backbone of the formulation, there are many other components that complete a stain, filler, primer or topcoat coating formulation. Single and multifunctional monomers are the "connection" to the oligomers that form the molecular network during the exposure to UV energy. As the number of reactive groups increases, the higher the crosslink density becomes.

Monomers are relatively low in viscosity and therefore also serve as a diluent in reducing the overall viscosity of the coating. Other components of UV coatings include additives, pigments and fillers, similar to conventional wood coatings, which are added to achieve desired flow, leveling, color and curing characteristics.

The benefits of using UV curing technology can be quite impressive: much less waste, lower energy consumption, higher productivity and reduced or eliminated pollutant emissions are just a few.

Benefits of UV Coatings in wood finishing applications:

•Little or no VOC.

UV stains, fillers primers and coatings can be formulated at 100 per cent solids.

• High productivity

UV cured components can be packaged immediately after curing.

• Low floor space requirement

In a typical vacuum coat or spray line application, cure equipment are only 10 to 20 feet long.

• Low energy requirement

Typical energy requirements for UV lines are only about 15 per cent of a thermal curing system

• Coating can be reclaimed

With the lack of solvents, the volatility is very low, those reclaiming can be achieved without any change to viscosity.

• Lower applied cost

UV coatings costs are 2.8 cents per square foot, 7.8 cents for solvent lacquer and

11.6 cents for water based coatings (based on 40 per cent transfer efficiency for solvent and waterborne)

• Enhanced product quality

UV coatings provide a high crosslink density, which yields a higher scratch resistance, improved stain, water and abrasion resistance. An abrasion test performed using a Tabor Abrasion resistance tester and utilizing a CS 17 wheel with a 1000g load the UV curable coating passed 3,400 cycles while the solvent coating performed to 850 cycles.

• One component system

UV coatings are supplied ready to use with a typical shelf life of six month or longer.

• Process Considerations

Finishing processes incorporating radiation curing differ substantially from conventional finishing processes. Implementing UV technology is making some fantastic impacts in the wood finishing industry. However, the transition can at times be costly and time consuming particularly when the process is poorly understood.

•Raw Materials

With radiation curable coatings, inks and adhesives you are dealing with raw materials rather than prepolymerized formulations

• UV Curing

UV curable formulations are con-

verted to solid polymers within a spectral range of UV in seconds versus 30 to 40 minutes for conventional coatings

• Characteristics

The optical and physicalcharacteristics of the curing system and their interaction with the optical properties of the coating formulation are an integral part of the coating performance. Neglecting any aspects of their interaction will result in the limitation of the cure window

• Limitation

The limitation of line of sight curing must be taken into consideration when developing both the product and the process for 3D wood products.

## TYPES OF UV-CURABLE COATINGS

Essentially there are three types of UV curable coatings available—100 per cent solid UV, water reduced UV and solvent reduced UV.

100 per cent solid UV coatings are liquid coatings that do not contain any evaporative solvents or water. Their composition or formulation is totally based on active chemistry that converts to a solid finish upon exposure to ultraviolet energy. Since there is no requirement to evaporate any solvent or water, the product can immediately be exposed to UV energy for curing. UV curing is instantaneous and the parts are immediately ready for the next process step.

A very significant advantage of 100 per cent solid coatings is the fact that the overspray or overflow coating from roll and flow coat applications can be recaptured and re-use immediately.

The disadvantages of 100 per cent solid coatings are absolutely minimal. The two most common concerns raised in wood finishing with 100per cent solid coatings are:

1. With 100 per cent solid coatings build film thickness to fast and conventional wood appearance is not obtainable.

2. With 100 per cent solid coatings a low gloss appearance is hard to obtain.

Both issues are pure perception and can easily be avoided through application techniques.

Water reduced UV curable coatings are predominantly used in high volume door and panel finishing operations.

These surfaces have commonly a low build appearance, presumed to be only achievable with coatings that were not 100 per cent active.

Today this perception still exists, although 100 per cent solid coatings are used in other applications with the same results obtained.

The major disadvantage with water reduced UV coatings is the retention of water particles within the coating during the curing process.

Defects caused by the water retention are white spots in the finish, especially in areas were the film build is slightly higher. These white spots are created when suspended UV sensitive materials undergo cure before it had a chance to fully dry and form a uniform film.

Capturing and reuse of overspray coatings is not as easy as with 100% solids.

The reclaimed material must be monitored for viscosity and adjusted accordingly.

Except for the actual curing process, the application of solvent reduced UV coatings is identical to conventional solvent coatings and is easily understood by traditional wood finishers.

Solvent reduced UV curable coatings enable dramatic opportunities, however their negative impact on the environment is the same as that of conventional solvent.

Pine River Inc. located in Charlevoix MI. manufactures log siding systems for the log home industry. Pine River applies two coats of 100 per cent solid UV stain, providing a environmentally sound base coat, formulated by Allied PhotoChemicals Inc. of

Kimball MI., to protect against fungus and algae growth, insects and damaging effects of the sun's rays.

My advise to finishers considering solvent reducing UV curable coatings is – explore the options existing with 100 per cent solids. It is quite likely that you will achieve the same results without having to deal with solvents that can be costly and hard to dispose off.

## SELECTING THE RIGHT CURING EQUIPMENT

There are four basic UV curing technologies available:Arch or electrode UV lamps,

Microwave powered UV lamps, Xenon pulse and light emitting diode (LED) light sources. Mercury arc and microwave powered UV light sources are the two most commonly found light sources in wood finishing industry.

The type of UV curing equipment and specific bulb type appropriate for a given wood coating application is dependant on the chemistry, pigments, coating application technique and overall process design considerations.

Most pigmented coatings or thick clear coats cure best within a long wavelength of the ultraviolet spectrum as generated by a "D" bulb. Most thin, clear coatings are best cured with a short wavelength as generated by an "H" Bulb.

"Solvent reduced UV curable coatings enable dramatic opportunities, however their negative impact on the environment is the same as that of conventional solvent".

The bulb spectrum of a "D" as well as a "H" bulb is shown above. Additional bulb spectrum output variations are available. Those bulbs are also referred to as doped bulbs, meaning they include metal halides such as iron oxide and gallium halide additives.

Another important factor in selecting the right lamp system is based on the lamp configuration required for the particular part shapes, their size and the handling of the product to be cured.

For example flat wood panels, hardwood flooring, and cabinet doors are typically placed on a flat conveyor. A bulb length of up to 72 inches is available in mercury arc systems.

Microwave powered lamps are only available in 10 inch length, requiring multiple lamps to be installed side by side. For vacuum coated shaped moldings or profiles multiple single microwave lamps provide great flexibility.

The process application will also establish the selection of UV Spray application system with UV curing chamber seen at end.

In flat or linear application elliptic (focused) reflectors provide the highest energy, however on 3D moldings and for example fully assembled chairs a parabolic (defocused) reflector would provide a more balanced irradiance.

## FACTORS AFFECTING CURE

A number of physical and optical characteristics of the curing system (outside the formulation itself) affects the curing and consequent performance of the curing material, be it stain, primer, filler or top coat.

## PHYSICAL PROPERTIES

The four key factors of UV lamps are:

UV irradiance: the radiant power arriving at a surface, per unit area; photon flux; or total photon quantity arriving at the surface. Expressed in Watt/cm2 or milliWatt/cm2 .

Irradiance varies with lamp output power, efficiency, and focus of its reflector system.

UV Irradiance Density: also referred to as dose. The radiant energy arriving at a surface, per unit area; or total photon quantity arriving at the surface. Dose is inversely proportional to speed under any given light source. Dose is the integral of irradiance which a surface is exposed as it travels past a lamp or number of lamps. Measured in Joules/ cm2 or milliJoules/ cm2 .

## SPECTRAL DISTRIBUTION

Relative radiant energy as a function of wavelength. The wavelength distribution of radiant energy emitted by a UV light source. Measures of dose without identifying the wavelength are irrelevant.

Infrared Radiance:The amount of infrared energy emitted by the quartz envelope of the UV source.

## OPTICAL CHARACTERISTICS

Spectral Absorption: the relative energy as a function of wavelength absorbed in the material at increased depth. More energy absorbed by the coating at its surface means less energy available at deeper levels.

Reflectance and Scattering: relative radiant energy which is "redirected" by or within the coating, rather than absorbed.

Optical Density: combined factor of "opacity" and film thickness; includes light attenuating effects of absorbance and scattering.

Diffusivity: a thermodynamic characteristic combining specific heat, conductivity, and density; the ability of a material to diffuse heat input.

Temperature: has a significant effect on the rate of curing reaction; although exothermic reaction contributes to heat, radiant infrared

energy is the dominating source of heat.

Excessive temperature rise is one of the most common limiting factors affecting the cure window.

The UV curing Process Window is the practical result of a process design. It is influenced by a large number of factors such as those reviewed. The nature of the wood; the coating formulation; and the lamp system. Careful analysis of these factors contributing to properties of interest can provide opportunities to widen the operating limits of the process.

The optical and physical characteristics of the curing system and their interaction with the optical properties of the coating formulation are an integral part of the coating performance. Neglecting any aspects of their interaction will result in the limitation of the cure window.

The fast curing time of the UV curing system enables Pine River Inc. to achieve a high throughput, providing process efficiencies resulting in lower overall costs to the consumer.

## FINISHING FACTORS

Today's wood furniture manufacturer has a large pool of various wood species available to stand out and attract the consumer.

However, special attention must be given to the finishing process in relation to each species.

Virtually any wood species can be finished to a high quality, but the selection and use of the proper UV-curable coating requires certain considerations.

Some of those considerations are:

- Number of coating layers in the structure
- Thickness of each layer
- Properties of each layer
- Performance of each layer

The number of coating layers is based on the specific application and aesthetic requirements of the end product and is mostly driven by market expectations.

It can range from as few as four layers (stain, sealer, first top coat and second top coat) to as many as eleven.

Smooth finishes require multiple filler/sealer coats and may require sanding between layers to give the desired look, whereas finished with open grain characteristics typically have fewer layers.

The extremes in textured products pose special challenges in achieving consistency in coating uniformity.

The thickness of each layer as well as the overall film thickness can vary substantially from application to application, but typically overall total film thickness lies between 2 to10 mil.

The properties of each layer are determined by the environmental conditions in which the product is to be used.

For example: wood flooring would require a high abrasion resistance, which primarily is achieved in the properties of the filler but also as in the combination of all layers.

In kitchen cabinets chemical resistance in combination with mar resistance would be essential.

In outdoor products just as logs, protection against fungus and algae growth, insects and damaging effects of the sun's rays are the critical properties.

Pine River Inc. located in Charlevoix MI. manufactures log siding systems for the log home industry. Pine River applies two coats of 100 per cent solid UV stain, providing an environmentally sound base coat.

The properties of each layer formulation is determined by the base oligomer used in the formulation of the layers product, which in turn must be selected with the overall performance requirement of the end product in mind.

The performance of each layer will be determined by the requirements of the end product relative to texture, gloss, feel and durability.

## FACTORS ASSOCIATED WITH WOOD FINISHING

In closing let's discuss factors associated with wood finishing.

## SEAL COAT

Regardless of the number and combination of layers to be applied, it is essential to apply the correct amount of sealer when using 100 per cent solid UV coatings. It is critical to be very careful not to apply substantial film build to the wood surface when sealing.

The properly sealed wood should look visibly dry and starved for coating. Experience will show that an effective seal coat will dramatically improve the top coats uniformity.

Excessive seal coat application will result in irregular areas of thicker film build and aggressive sanding will be required to produce a uniform surface for top coat application.

It is also common to see what is described as "oatmeal" or broad "orange peel" in the surface texture of the top coat if the flow characteristics of the seal coats are poorly designed. Equally important is the need to cure the seal coat immediately after application to avoid "strike-in" which in turn can result in a poor cure.

## INTERCOAT ADHESION

There are a number of UV curable coating compositions which exhibit excellent intercoat adhesion without intercoat abrasion, sanding or denibbing. However, overcoats must be applied within a short time frame (within 4 to 24 hours) after the previous coat. Thereafter, sanding would be required to achieve quality intercoat adhesion.

## SANDING

UV curable top coating compositions are formulated for hardness and are difficult to sand. This is the reason why many wood finishers use separate sanding sealers than self sealing top coats.

Regardless, the sanding media used is very important. If the sanding media is to coarse, sanding lines may remain, and it may be difficult to prevent potential seal coat removal. The resulting topcoat uniformity will be poor. If the sanding media is to fine the surface may not wet out, as well as jeopardous intercoat adhesion. It also can cause the pore structure of the wood to be filled with sanding dust preventing adequate binding between the seal coat to the wood structure.

## CURE CONDITIONS

With 100 per cent UV curable coatings the irradiance level to which the coating is exposed to will influence the gloss level achieved. A low- irradiance cure will result in a lower gloss value while a high- irradiance cure will result in a high gloss value. This is mainly due to the ability of the flatting agent to rise to the surface.

## PITCH, SAP AND OILS

Oak, maple and other common hardwoods are relatively straight forward. Sap woods and oily wood species, can present challenges. Excessive heat and high intensity of the UV curing lamps and the exothermic reaction of the UV chemistry can and often does draw pitch, sap and oils to the wood surface. Wood is typically harvested, kiln dried and heat processed to fix pitch and sap, but should adhesion fail, investigating pitch, sap and oil contend may be worthwhile.

## MOISTURE

The moisture range of various wood species as well as in engineered woods is critical in processing 100 per cent UV curable coatings and to the finished quality of the end product.

Hardwood's should not exceed a 5 to 8 per cent moisture range, while pine species and other sap woods should have a moisture range of 12 to18 per cent. Medium Density Fiberboard (MDF) a engineered wood product should not exceed a 5 per cent moisture content for best finishing results. Just to mention; Plywood falls within either category of Hardwood, or Softwood depending on the top veneer layer.

## CONCLUSION

Conventional solvent and waterborne based wood coatings are still the majority of coatings used within the wood finishing industry.

However, as previously stated; Wood finishing processes incorporating radiation curing differ substantially from conventional finishing processes. UV technology can bring fantastic results, however, the transition can at times be costly and time consuming particularly when the process is poorly understood.

For the experienced wood finisher, the above concepts are not new. For the Finisher new to UV technology, perhaps some of the difficulties in making a effective transition will be minimized. ■

*Greg Trojan is President and Senior Consultant for UV REsearch & Technology Inc. in Ajax Ont. and can be reached at uvtech@bellnet.ca*

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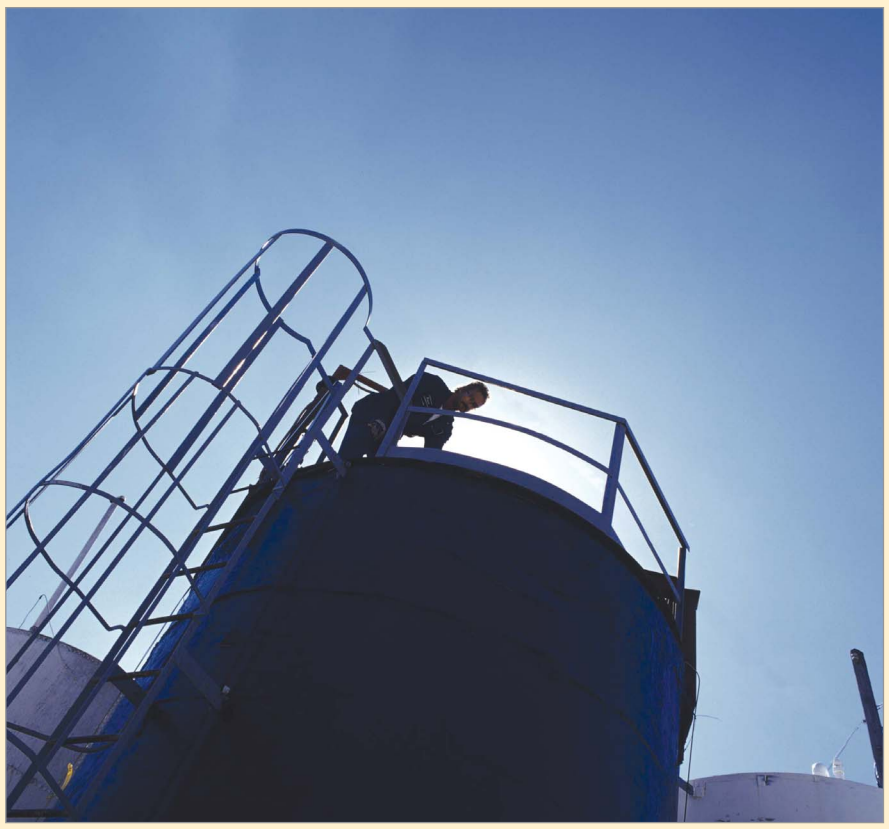
# Fielding Corporate Overview

**Fielding Chemical Technologies** is a cutting edge Canadian firm that is perfectly positioned for growth in the developing area of sustainable chemical manufacturing. From its roots in Toronto more than 100 years ago when E.B. Fielding & Son was formed as a supplier of turpentine, linseed oil and other products, the company was re-invented when Mr. Jack McGregor took over in the mid nineteen-fifties, and re-named it Fielding Chemical Technologies Inc. Jack McGregor was an entrepreneur and a visionary who saw the value in protecting the environment by rejuvenating old, spent solvents and chemicals and putting them back into the market with useful lives as opposed to incineration or burying them in landfills. He set the company on the road to recycling, effectively giving it a technological head start of almost 50 years over its competitors. Under the direction of a second generation of McGregors, Fielding has expanded its ecologically responsible programs by the continued development of advanced methods of filtration, fractionation and other proprietary processes to efficiently and economically give new life and uses to chemicals, solvents and refrigerants.

Today, Fielding employs over 65 people and is the largest refrigerant and solvent reclamation company in Canada and has one of the largest chemical recycling facilities in North America. They are the first chemical recycler in North America to have ISO 9001:2000 management practices certification and the first in the world to be certified to ISO 14001:2004 environmental management standards. Fielding is also the first chemical recycler in the world to be a verified member of the Canadian Chemical Producer's Association Responsible Care Program. "These credentials verify our ability to bring more expertise and assets to the table than any other player in the industry and have allowed us to work with Fortune 500 companies around the world." says CEO Ellen McGregor with pride. Ellen and her brother Ian McGregor continue to manage and develop new processes and products at Fielding's 6 acre facility in Mississauga, Ontario, Canada.

When asked about the future, Ellen said that the biggest obstruction to growth is a less than helpful regulatory framework that labels raw material "hazardous waste". That term, with all its negative connotations contributes to an unjustified stigma attached to the word "recycled". "Once the material is processed and purified it's every bit as useful and effective in its chosen applications as new "virgin" products and should be treated as such" says Ellen. "It's a shame that approximately 4 million tonnes of "waste" chemicals are disposed of each year in the U.S., much of it could be recycled but only a fraction of it is, and a similar situation exists in Canada, though on a proportionately smaller scale."

Fielding is currently embarking on a program to raise awareness of their recycling options to disposal of spent chemicals and invites responsible companies to contact them and find out more about the savings and benefits. To find out more, please visit their website at www.fieldchem.com or call direct at 888-873-2524.



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## Company Description:

Troy Corporation is a global leader in performance materials - principally preservatives and additives – used in the manufacture of paint and coatings, building products, adhesives and sealants, textiles, metalworking fluids, cosmetics, and personal care products. Troy has served these industries with innovative, value-added products for over fifty years. The company's success in introducing new materials in anticipation of industry needs has fueled expansion into new markets worldwide.

Troy invests significant resources in research and development to address emerging needs and is dedicated to providing customers with continually improved products. Troy is positioned to offer service to customers through a global network of technical support, complemented by local sales staff.

**"Troy invests significant resources in research and development to address emerging needs and is dedicated to providing customers with continually improved products."**

## Markets Served:

Troy operates modern manufacturing facilities in the USA, Canada, Germany, Netherlands, Russia, and Thailand. Troy is recognized for providing a wide range of high quality additives, preservatives, and specialty performance products to customers in over 100 countries.

Troy manufacturing facilities are ISO 9001:2000 Certified, indicating dedication to quality and accuracy. Troy also achieved ISO 14001:2004 certification of its Newark, New Jersey, USA manufacturing facility, recognition of the company's environmentally sound manufacturing process. As a global manufacturer, Troy has reached important milestones in extending its presence to markets around the world with performance products recognized for their quality, reliability, and value.

## Technologies:

Troy products are involved in improving coating properties, protecting against product spoilage in the package, and resisting fungal and algal attack on the applied coating surface. In the USA, Troy is the leading producer of zero VOC (volatile organic compound) dry film preservatives offering protection against marring and premature failure of coatings caused by microbial attack. In addition, Troy launched a new line of highly efficient defoamers for aqueous systems and provided a series of high performance substrate wetting agents capable of coating many difficult hydrophobic surfaces. Troy remains committed to the ongoing pursuit of product innovation and the advance of technology in the markets the company serves.

Troy's experienced Technical Service staff provides customers with expert assistance to meet a diversity of challenges. Troy utilizes the latest advances in performance materials research to create unique solutions for customers from Technical Service Centers in North America, Europe, and Asia.


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| | |
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## Troy Locations

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**"Troy products are involved in improving coating properties, protecting against product spoilage in the package, and resisting fungal and algal attack on the applied coating surface"**

# Chemetall Oakite


Headquartered in New Providence, NJ, Chemetall Oakite has been developing, manufacturing, and supplying state-of-the art specialty chemical products since 1909, nearly 100 years, and is the second largest supplier of surface treatment chemicals in the Americas. The ISO 9001:2000 certified company offers a wide spectrum of products and systems to meet the needs of many industries and applications.

Chemetall Oakite has developed the reputation for solid technologies backed by the service and support to insure our customer's success. We are proud to provide our customers with what is among the world's largest array of specialty products.

### Products

Chemetall Oakite's integrated products, chemical management systems, process equipment (dispensing, controlling, and monitoring), and service programs facilitate many processing needs. Our products are used in more than 30 industries, including aerospace, appliance, architectural, automotive, coil coating, cold forming, general industries and specialty markets including food, pharmaceuticals and pulp and paper to name a few. From time tested cleaners, iron, zinc and manganese phosphates to the latest in low temperature, chrome-free, and phosphate free technologies, Chemetall Oakite has the solution for your every need.

### General Industries

We have the most advanced and comprehensive line of conversion coatings, including zinc, iron and manganese phosphates, chrome, chrome-free and phosphorus-free treatments, and rust preventatives. We have a complete line of coatings for any processing need, including cleaning prior to pretreatment and rust prevention for in-between processes or maintenance cleaning. From floors, walls, and glass to stainless steel, aluminum, steel, copper, brass, chrome, ceramic tile and porcelain our wide array of cleaners gets the job done. Whatever the substrate or soil, chances are Chemetall has a cleaning chemistry formulated to get the job done. In many applications, cleaning is the entire job, but often it is just the beginning. In preparing surface for subsequent operations such as painting, conversion coatings may be used to enhance adhesion and corrosion characteristics. Again, Chemetall has an enormous array of surface treatment products for virtually any application. When issues arise in painting operations, rejects/rework can result. Don't worry though, chances are that Chemetall has the paint stripper that you need to solve the problem.

### Aluminum Finishing

Our new aluminum processes offer surface finishers a full line of products and equipment that produce superior surface quality and improved speed and efficiency. These processes are well suited for exterior applications in a variety of industries, including architecture, aerospace and automotive markets. Many products have automotive, military or AAMA approvals. We have cleaners, etchants, deoxidizers and a variety of conversion coating products used in the entire range of applications on sheet, cast and extruded aluminum alloys.

### Wire and Tube/Machining

State-of-the-art forming operations include pretreatment by low temperature phosphating, reactive oils, soaps, oils and in the case of wire, the use of lime, borax and other products. We offer a full line of cold forming systems that simplify metalworking processes through cutting edge technologies and automation. No matter what "shape" your business is in, Chemetall Oakite is your single source for state of the art research, development training implementation and coordination of your cold forming systems.

### Aerospace

Our aerospace division offers a complete line of approved products for the Aerospace Industry supplying solutions to the Airframe, Aero-engine and Aircraft operation market segments. Our chemical products are designed for use in aircraft maintenance programs from daily cleaning to complete aircraft overhaul. Our line of conversion coatings is perfect for aluminum and its alloys. Our approved line has been developed specifically for aircraft exterior and interior surfaces, making Chemetall Oakite a perfect fit for aerospace coating applications. We also offer products designed for non-destructive testing.

### Coil Coating

Chemetall Oakite's coil-coating technology is known as the industry standard. Our innovative product lines include zinc phosphate conversion, "dried in place" coatings, RoHS compliant chrome free treatments and passivation products, permanent coatings, and weldable and UV cure universal primers. Our coil customers are steel and aluminum mills as well as coil coaters (paint) and other coil finishing operations.

### Pulp and Paper

Whether it's thick grease under the dryers or rock-hard scale in the liquor heaters, Chemetall Oakite helps you with proven maintenance products that work safely and rapidly. Our product line ranges from scale and deposit control formulations to machine maintenance cleaners.

### Automotive

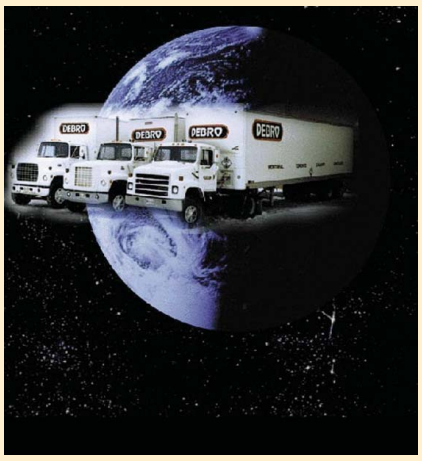
Chemetall Oakite is a major supplier to the aluminum wheel manufacturing sector worldwide, and we've partnered with the industry to develop many innovative processes. Chemetall Oakite is also a single source supplier for metalworking fluids, in-process cleaners, paint strippers, pre-paint treatments, and much more. We have tremendous experience and applications in OEM assembly plants and component manufacturing operations. As one of the surface finishing industry's most experienced suppliers of solutions to laser cut edge scale and weld smut problems, our products and process advice improve the quality of cars, trucks, on and off-road vehicles around the world.

Chemetall Oakite has regionally located customer service centers throughout the Americas, underscoring our commitment to customer support and our technical field staff is always prepared to provide the perfect solution for any of our customer's needs.

For more information contact:
Chemetall Oakite – Canada
115 East Drive, Brampton, Ontario, L6T 1B7
800-668-4318
chris.ellen@chemetall.com
www.chemetalloakite.com

**"Our products are used in more than 30 industries, including aerospace, appliance, architectural, automotive, coil coating, cold forming, general industries and specialty markets including food, pharmaceuticals and pulp and paper to name a few."**

# Debro Chemical




**Debro Chemical** was first established in Canada in 1921 as a distributor of raw material used in the manufacture of paints and coatings. Now marking the company's 82nd year in operation, Debro remains one of the industry's most respected organizations among its valued principal partners and its many customers from coast to coast and throughout Canada.

With the ongoing evolution of chemical distribution in North America, with a focus on "bigger is better", Debro has maintained an efficient business model that places emphasis on working closely with its principals, as well as to keep a constant vision to expand a value based partnership principal that ensures customers receive the highest level of quality product and technical service. With industry veterans like Bert Papenburg in Eastern Canada, Ron Yetman in Ontario and the recent addition of Verno Lo in Western Canada, Debro can boast having one of the very best Technical Sales and Product management groups serving the coatings industry in the country.

As a key part of the billion dollar Amalgamated Metals Corporation PLC global family of companies, Debro Chemical has been able to attract, and has retained long term relationships with, many of the world's top manufactures of coatings raw materials. From pigments and additives to performance minerals, Debro Chemical is positioned to provide coatings manufacturers across Canada with a competitive source of many key products that have a major impact on the sale of finished product.

### Facing Challenges

Debro is keenly aware of the challenges facing their customers in today's economic environment, especially those that rely heavily on exports. Through innovative programs to improve internal operations and by using the latest in supply chain management techniques, Debro is doing its best to keep costs to a minimum and wherever possible, will pass these savings along to its customers.

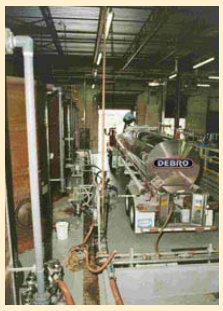
Where is Debro heading?

Debro Chemical has long been a pioneer in the distribution business in Canada and key to the company's continued longevity and unparalleled success, will be a strong understanding of where Debro came from and creating a culture that will attract and retain the best and the brightest people in the industry.

## Debro In the News

### People at Debro

Debro is very pleased to announce that Bert Papenburg has been promoted to the position of Product Manager - Specialty Chemicals. In his new role Bert will work closely with a defined group of our Specialty Chemical principals and will be responsible for direct communications on all product related initiatives. Bert will maintain direct sales responsibility at key accounts located in the Eastern Region, however his product management responsibilities will be National in scope. Bert Papenburg has strong technical knowledge in many application areas where our specialty chemicals find use, and he will be a tremendous asset to Debro in both the promotion and development of new and existing business opportunities.




Debro is also very pleased to announce that Vernon Lo has joined the company in the position of Western Region Sales Manager. Vernon is a veteran of the chemical industry in Western Canada and brings 25 years of experience in the coatings, industrial minerals and specialty distribution business. Within this role, Vernon will be challenged with developing and carrying out strategies at existing and new customers that will quickly re-establish Debro as a prominent distributor in Western Canada.

### Tronox LLC (formerly Kerr McGee)

It is our great pleasure to announce that Debro Chemicals has been appointed the authorized distributor in Western Canada for all grades of "TRONOX" Titanium Dioxide Pigments. Debro has successfully represented TRONOX TiO2 in Eastern Canada for many years, and with this expanded responsibility, will be positioned to provide customers from coast to coast with "TRONOX" branded products, which are considered the very best in the world.

### Zemex Industrial Minerals

With the recent acquisition of Zemex Industrial Minerals by General Chemical, Debro Chemical will take on an expanded role of representation in Canada that will include a number of key accounts that had previously been serviced directly by ZIM. Zemex Industrial Minerals North American operations include; Suzorite Mica and Zemex Attapulgite and Kings Mountain Mica.

### Imerys Performance Minerals

Imerys Performance recently announced that the company will reinstate several high performance engineered calcined clays produced at their facilities in Dry Branch and Sandersville, Georgia. Many of these products under the trade names Glomax, Polestar and Neogen were used extensively in many architectural and industrial coatings formulations. Imerys Performance Minerals products are distributed in Canada by Debro Chemicals.

**"With the ongoing evolution of chemical distribution in North America, with a focus on "bigger is better", Debro has maintained an efficient business model that places emphasis on working closely with its principals…"**

# Chemfil Canada

**Chemfil Canada**, a leading supplier of technologically advanced pretreatment chemicals, is gaining recognition throughout the industry as a supplier of high quality products and unparalleled customer support. Chemfil Canada Ltd. was established in 1972 and serves both the automotive and industrial metal finishing markets in Canada, out of our head office and manufacturing plant located in Windsor, Ontario.

Pretreatments are designed to enhance coating adhesion and reduce surface corrosion if paint films are broken. Pretreatment chemicals are a critical component of a finishing operation.

Chemfil's cleaners, activating agents, phosphate conversion coatings, rinses and plastic washers are continually breaking new ground in providing adhesion and corrosion resistance for e-coat, liquid and powder-coated parts. Supported by PPG, a world leader in powder, liquid and electro deposition coatings, their unique approach to enhancing products while providing cost savings has dramatically improved the bottom line to customers across Canada.

"Pretreatments are designed to enhance coating adhesion and reduce surface corrosion if paint films are broken. Pretreatment chemicals are a critical component of a finishing operation."

### Leading Technology

Chemfil draws on PPG's worldwide experience to bring proven technology to the Canadian market. Their technologies cover a range of applications and consistently exceed stringent performance expectations. From ChemfosTM zinc phosphates for automotive corrosion needs, to Irco Bond® heavy zinc phosphates for fasteners to ChemfosTM iron phosphates for general industrial requirements, Chemfil continues to bring new developments to market.

Chemfil is also successful in partnering with other manufacturers to bring to Canada products that can offer improvements throughout a customer's process. We have a distribution agreement with IRMCO®, out of Chicago, that allows us to bring their unique metal working products to Canadian manufacturers. These products offer environmental benefits while resolving forming issues that exist with High Strength Steel. They also provide for fewer downstream processing issues associated with standard oil-based and pigmented paste lubricants (such as welding and cleaning difficulties and waste treatment problems.) Recently, Chemfil began supplying E_CLPS® Chrome-free pretreatments (a unique, patented technology) under agreement with Bulk Chemicals Inc. This product line offers high performing non-chrome solutions for the pretreatment market, but is most effective for Aluminum coatings.

Chemfil also provides a complete line of booth coatings, paint detakification, paint strippers, corrosion inhibitors, descalers, lubricants, wastewater treatment, maintenance products and more.

### Lowering Operating Costs

Manufacturers in today's marketplace face tough competition. Chemfil rises to this challenge by offering system design inputs, aggressive pricing and advanced chemical technologies. Chemfil focuses on efficient products that are not only compatible with their customers' systems, but actually enhance their performance while lowering operating costs. Some of their innovative tools include:

Highly concentrated chemical formulas to lower application use and cost.

Zinc phosphate products formulated to minimize the cost of sludge generation.

Latest generations of proven ambient temperature Cleaners, Iron phosphates and Final Seal technologies, cutting thousands of dollars out of their customer's gas or hydro bills.

### Providing Value-Added Technical Support and Service

Chemfil's technical service staff regularly monitors their customer's pretreatment system, working to optimize the pretreatment operation and keep costs down. Highly skilled people provide their staff with training in critical areas such as maintenance, system monitoring and control, and safety.

In addition to providing extensive support, they offer customers the opportunity to gain a better understanding of the pretreatment process at two-day Knowledge College® seminars, held throughout the year.

Each technical representative is backed by a world-class applications laboratory which:

- Can simulate any customer's pretreatment process.
- Has the ability to e-coat, powder coat, liquid coat and cure over the pretreatment to be evaluated.
- Uses an environmental laboratory to test performance in tough conditions. Capabilities include ASTM and automotive salt spray and cyclic exposure tests.
- Comes with a fully equipped analytical laboratory to perform basic research or troubleshoot customer applications.
- Offers a scanning electron microscope, FTIR spectrometer, Atomic Absorption spectrometer, Capillary GC, Liquid Chromatography spectrometer and other instrumentation allowing technical staff to perform appropriate tests ensuring products will perform at their best.

### Delivering Performance

With Chemfil's skilled staff, impressive array of cutting edge products, comprehensive modern laboratories, high quality standards (certified to TS-16949:2002, ISO14001:2004 and OHSAS 18001:1999) and stellar support services, it's easy to see why they are considered the market leaders.

For more information on Chemfil Canada Ltd. and its services, call (800) 265-5057.

Chemfil draws on PPG's worldwide experience to bring proven technology to the Canadian market. Their technologies cover a range of applications and consistently exceed stringent performance expectations.

# Global Finishing Solutions

**Global Finishing Solutions** heritage spans back to the late 1800's. Initial roots go back as far as 1888 and the days of Dr. Allen DeVilbiss. When the world's first 'atomizer' was invented for use in the health care industry, it didn't take long for this innovative technology to be adapted for other uses, including the spray application of paint. Effectively replacing the brush-and-can method of painting in manufacturing processes, production efficiency was taken to a whole new level. However, this increased production was hindered for a long time by the extensive drying times of the sprayed paint. Eventually, numerous companies began to manufacture engineered 'rooms' for spray painting. These rooms gave the painters a safer environment in which to work, and since they featured controlled ventilation and increased airflow, this decreased the required drying time.

GFS was officially formed in 2003, and is the result of the joining of some of the most significant names in the finishing industry. DeVilbiss spray booths, JBI booths, Blu-Surf finishing systems, Binks spray booths, Milbanks finishing systems, are a few of the names that are now known as GFS. This merging of technology and professional expertise give GFS a vast amount of knowledge from all areas of the finishing world.

GFS employs an extensive team of engineers and technical specialists that are continuously developing more effective solutions for all types of finishing operations. Airflow specialists, structural engineers, electrical engineers, control systems developers, and mechanical engineers from various backgrounds bring innovative ideas and problem-solving capabilities to the GFS team.

Global Finishing Solutions offers a diverse line of finishing equipment for almost every kind of finishing job imaginable. GFS has business units in aerospace, industrial, auto & truck refinish, and systems as well GFS supplies all the parts and filters that these products require.

**GFS Aerospace Division** has a reputation in the finishing industry like no other company in North America, and the world. Across the United States, Canada, and the United Kingdom, our team of engineers and technical specialists have completed multiple installations of the most advanced finishing environments in the world. Aviation coatings require precise environmental control over temperature and humidity in order to cure properly. Contamination control is also a vital component in the aviation finishing process. Without proper control over the environment, modern high-tech coatings just don't cure and dry the way they are intended by the coating manufacturer. This is especially important in the aviation world due to the extreme conditions that these coatings must endure. If the coating is applied improperly, the results can be potentially disastrous. That is why GFS ensures its aviation finishing equipment meets and exceeds the highest standards in the world. For example, when the United States Air Force needs to paint its new F-22 Raptor fighter jets, they use a GFS paint booth to ensure that the high-tech coatings get the proper treatment.

**GFS Industrial Division** offers an incredibly diverse range of products for all imaginable types of finishing operations. From small, bench-style paint booths that are ideal for woodworking projects, to multi-stage automated finishing systems, GFS Industrial provides solutions to businesses of all types and all sizes. Whether it is woodworking or metal forming, liquid coating or powder coating, application or burn-off, GFS Industrial Division manufactures the finest finishing equipment available today. Plus, our unique 'modular' approach allows our customers to choose which components they need, while GFS consultants help tailor these components to unique requirements of each client. Each piece of GFS equipment can be used on its own or combined with other pieces of GFS equipment to form a complete system. GFS Industrial products can also be integrated in to existing systems to replace aging components and out-of-date technology.

**GFS Auto & Truck Refinish Division** is changing the face of the Refinish industry with innovative new concepts and technologies designed to increase profits, reduce operating costs, and reduce the environmental impact of the automotive refinish processes. GFS is constantly on the cutting edge of refinish coating technology, and strives to improve automotive paint booths to new levels of performance and efficiency. GFS offers a complete line of economical and high-performance paint booths and finishing systems designed for body shops of all shapes and sizes. GFS Auto & Truck Refinish is the leader in high-performance paint booth technology. Over the years, GFS pioneered such ground-breaking technologies as SmartCure, which is a control-panel enhancement that is pre-programmed to adjust the heat and duration of the curing cycle based on the unique properties of specific coatings. This enables the cure cycles to be optimized for the type of paint each body shop uses, minimizing cure times, and improving productivity.

GFS Auto Refinish is proud to be the official provider of paint booths for all major automotive manufacturers shop equipment programs. GFS has also forged strong relationships with all major coating and paint manufacturers. These relationships are strengthened by GFS' exceptional distributor network. Across North America, GFS Distributors are the finest source for sales, service, and installation, and provide a level of dedication to customer satisfaction that is unequalled in the industry. It is for these reasons and more that GFS is the finest automotive paint booth manufacturer in the world, with products available for body shops of all sizes.

**GFS Systems Group** utilizes decades of technical expertise and engineering success to create complex automated finishing systems that reach new levels of production efficiency and energy savings. GFS finishing systems range from simple one-or two- stage spray booths to multi-stage conveyorized pre-treatment washers, application booths, and curing ovens. Our in-house engineering team consists of electrical and mechanical engineers, airflow specialists, structural engineers, and control systems designers that configure each system to the unique needs of each customer. Each component is designed to provide maximum productivity, while working in sync with each other component in order to provide the most effective system possible.

**GFS Parts and Filters Division** provide nearly countless numbers of replacement parts and air filters for hundreds of different types of finishing products. With items available for both modern equipment and legacy products dating back several decades, and for multiple brands, GFS Parts and Filters offers a selection of replacement parts designed to keep any finishing operation running. GFS Parts are sourced from top-quality suppliers and kept in stock to provide quick turnaround and fast shipping to virtually any location across North America, and the world. Filters by GFS are premium quality, with exceptionally long-life and high holding capacity designed to provide higher levels of contamination control, and keep performing longer than other brands.

# KiON Specialty Polymers, A Clariant Business

**Clariant** was formed in 1995 –when Sandoz spun-off their specialty chemicals business. In 1997, Clariant acquired the specialty chemical business from Hoechst. Clariant is a global leader in the field of specialty chemicals.

Strong business relationships, commitment to outstanding service and wide-ranging application know-how make Clariant a preferred partner for its customers. Clariant, which is represented on five continents with over 100 group companies, employs about 21,000 people. Headquartered in Muttenz near Basel, it generated sales of around CHF 8.1 billion in 2006. Clariant's businesses are organized in four divisions: Textile, Leather & Paper Chemicals, Pigments & Additives, Masterbatches and Functional Chemicals. Clariant is committed to sustainable growth springing from its own innovative strength. Clariant's innovative products play a key role in its customers' manufacturing and treatment processes or else add value to their end products. The company's success is based on the know-how of its people and their ability to identify new customer needs at an early stage and to work together with customers to develop innovative, efficient solutions. Clariant employs 21,000 worldwide.

The KiON Specialty Polymers business was acquired in February 2006. KiON Specialty Polymers uses a patented process to produce polysilazane resins on a viable commercial scale. KiON Specialty polymers has 10 employees in the US and a sister group (Clariant Advanced Materials) in Germany with 12 employees.

### The KiON Line

Two basic classes of KiON polymers are available. The first type encompasses liquid and solid polymers, which can be thermoset. These compositions contain sites of ethylenic unsaturation, which can be activated to form a crosslinked network through the addition of heat.

The second type of polymer contains no sites of unsaturation, but cures through moisture-induced crosslinking at ambient temperature. KiON polymers have exceptional high temperature stability and, once cured, can be exposed to harsh thermal environments.

In addition, KiON Specialty Polymers has developed fully formulated coatings products for specialty applications like anti-graffiti. Graffiti is a destructive crime, especially when the graffiti contains chemically aggressive paints, opaque tar-like substances and corrosive brake fluid, making it a serious challenge to remove. Grime, especially when thick and ingrained, is an unpleasant contamination of public areas, which become dirty through heavy traffic and frequent use. KiON Specialty Polymers has developed a cost-effective and ready-to-use answer to graffiti and grime. G-Shield™ is especially suitable for ferrous, non-ferrous and galvanized metals, painted and powder coated surfaces and synthetic materials. In 2008, KiON Specialty Polymers will add products in the anti-graffiti line to deal with porous substrates, pigmented systems and cleaning auxiliaries. In addition, other resins and formulations for high performance applications are under development.

Polysilazanes resins and polysilazane based formulations can be differentiated by their adhesion, release, anti-corrosion and barrier properties as well as their ability to convert to ceramic coatings at elevated temperatures.

KiON Specialty Polymers works with customers to find the correct product or formulation to meet their application requirements. The company is in the process of growing from a resin technology based company to an application focused technical organization.

**www.kioncorp.com**

**"KiON Specialty Polymers has developed a cost-effective and ready-to-use answer to graffiti and grime"**

Clariant

Exactly your chemistry.

## *G-Shield™*

## Graffiti and dirt protection in one coat

Clariant has developed an easy-to-use, easy-to-clean, clear solution against aggressive and damaging graffiti and unsightly dirt.

G-Shield™ is an innovative, durable coating which provides protection from graffiti and grime. Markers, paints, inks, tar, sap, grease, dirt and other stains cannot permanently adhere to the G-Shield™ protected surfaces. Additionally, G-Shield™ will not alter the normal appearance of the substrate and is resistant to commercial cleaning solutions, and aggressive brake fluids. The protected material can be cleaned numerous times without reapplication or damage to G-Shield™.

G-Shield™ can be easily applied and because it is a thin coating, G-Shield™ is very economical – especially for large surfaces.

In addition to protection from graffiti and grime, G-Shield™ provides effective protection from UV radiation and weathering. Compared with unprotected surfaces, the G-Shield™ protected surface displayed no tarnishing, gloss reduction, scratching, or paint damage.

**Did we raise your interest?**

**Please contact us:**
**KiON Specialty Polymers**
A Clariant Business
1957-A Pioneer Road
Huntingdon Valley, PA 19006

Tel: 215.957.6100
Fax: 215.957.6324
**www.kioncorp.com**

**G-Shield™**

**Graffiti and dirt protection in one coat suggested applications:**
- Painted metal or metal surfaces:
- Trains (interior and exterior)
- Rail Cars
- Buses


- Metal facades and shutters
- Containers and trailers
- Bridges
- Public use facilities
- Marine vessels (interior)

**Signage:**
- Traffic/road signs
- Advertising signs
- Plastic coated signs
-

**Synthetic Materials:**
- Bus shelters
- Display cases and cabinets
- Bus stop benches

**Synthetic Textiles:**
- Plastic fabric
- Outstanding protection

**G-Shield™ offers superior protection of the substrate surface against:**
- Paints, varnish and inks
- Road tar, tree sap, dirt and grease
- Weathering
- UV radiation
- Chemicals and organic solvents
- Brake fluid
- Oxidation

# Industrial Coating Systems Division, Nordson Corporation

**For over 50 years**, Nordson's local presence has understood your needs to help provide the right solutions for your specific production requirements. Today, our extensive network of experienced people continues to develop and grow relationships with powder and liquid coaters throughout the world to help you realize greater productivity. In a mobile, global environment, we work hard to make sure we can meet your needs in countries where you operate now – and in the future.

Our worldwide facilities and operations attest to excellence in our powder and liquid coating systems. Our local capabilities are enhanced by:

- An extensive sales and service organization
- State-of-the-art customer test facilities
- Global network of reliable distributors
- Systems engineering department
- Product and materials development laboratories

Nordson people, equipment and technology exemplify our solid commitment for your complete satisfaction.

## World-Class Quality

Nordson supplies production-proven, high-quality products to users all over the world. To help you achieve quality standards, Nordson has met ISO 9001:2000 standards, as well as FM, CE, ATEX and CSA guidelines. These certifications attest to excellence in the design and manufacturing of our products and services.

In addition, our exclusive Package of Values® backs every Nordson product and system in every region and locale. The Nordson Package of Values® includes:

- Production testing
- System engineering
- Installation assistance
- Customer service
- Operator training

The combination of these features provides added value that is unmatched in the finishing industry worldwide.

## Systems Engineering

Experienced Nordson application engineers help custom-design coating systems to provide the highest level of performance and efficiency for specific coating application requirements.

In Nordson offices throughout the world, engineering design staff use today's best practices to quickly and efficiently provide detailed engineering drawings with all of the necessary information for system installation and future reference.

## Customer Test Facilities

Nordson maintains customer test facilities strategically located to serve you wherever you are. At our test labs, you can evaluate your selected coating materials and Nordson coating systems under production conditions, coating your parts.

Throughout our comprehensive test process, you can be assured that Nordson equipment and systems will provide the highest level of performance.

Nordson Corporation is one of the world's leading producers of precision dispensing equipment that applies adhesives, sealants and coatings to a broad range of consumer and industrial products during manufacturing operations. The company also manufactures equipment used in the testing and inspection of electronic components as well as technology-based systems used for curing and surface treatment processes. Headquartered in Westlake, Ohio, Nordson has more than 4,000 employees worldwide, and direct operations and sales support offices in 30 countries.

## Champion™ AAA Liquid Spray System

The new Champion™ Air-Assisted Airless (AAA) Liquid

Spray System from Nordson is designed for easy adjustments to deliver smooth, even coating coverage with high transfer efficiency and minimal overspray.

The Champion™ AAA spray system is used for painting iron, wood and plastic materials. It is designed to spray a variety of coating materials, including synthetic paints, bases and enamels; polyurethane; varnishes; liquid dyes; pastel and water-based paints; lacquers; and primers.

The lightweight aluminum gun body design allows for maximum operator control and comfort, and long service life. The gun is simple to use, clean and maintain, and features a patented, self-cleaning nozzle system that eliminates disassembly for rapid response. It also provides for easy-adjustment of control fan air and material flow, as well as an adjustable spray fan cap for efficient coating.

The air-operated N-20 piston pump features stainless-steel suction and pressure valves for long life, as well as a chromium-plated pumping rod with high resistance polyethylene strengthened lip seals. Its compact design provides flexibility for varying requirements, and reliable operation for consistent spray performance. The unit includes a flange that allows for wall or dolly mounting.

The Champion™ AAA System is an expansion to Nordson's liquid product line in the company's ongoing effort to provide manufacturers who liquid paint with reliable, dependable equipment and systems that can help increase their production and efficiency and deliver quality finishes and greater savings.

Several accessories for use with the Champion™ AAA spray system are available, including assorted nozzles to meeting changing production requirements, connection hoses, cleaning needles and varying sized paint filters.

## Encore™ Manual Powder Spray System

The revolutionary new Encore™ manual powder spray system is packed with features to provide coaters with unsurpassed operating control, coating capability and ease of use for an unprecedented level of coating for performance on demand.

The Encore™ system features plug-and-play design for easy set-up to take quick advantage of greater coating efficiency, productivity and quality than ever before.

The Encore™ gun is exceptionally compact, lightweight and well balanced, and features truly functional On-Gun controls and display. The all-digital control unit also features large, bright LED displays, and combines unmatched ease and flexibility of operation with true, closed-loop flow control for consistent, repeatable coating coverage, part after part.

The new, highly efficient Encore™ powder pump flows more powder with less air for a softer, more powder-rich spray pattern to speed painting and further increase transfer efficiency while also lowering air consumption

The Encore™ gun's keypad also includes a PowerPurge button to quickly clean the powder path from the base of the handle through the nozzle for optimum spray pattern consistency and powder deposition uniformity.

Designed for flexibility of operation, the Encore™ system allows users to select between two different modes of electrostatic and pneumatic operation, and between Metric or English units of measure. In addition, they have the one-touch simplicity of the patented Nordson Select Charge selectable electrostatic coating modes already optimized for deep cavity, metallic powders and recoating applications. And up to 20 presets can be created combining all of the selected operating parameters and accessed from the gun for optimum,


repeatable results on every part, every time.

The Encore™ system is available in five mobile configurations that include two vibratory box feeder and three different capacity fluidized hoppers, to best suit specific powder coating operations. Stationary configurations to accommodate rail, stand or wall mounting are also available.

# Norspec Filtration Ltd.

**Norspec Filtration Ltd.** has been a supplier of filtration products to the paint & coatings industries since its beginning in December 1985. The company has grown from an initial size of two employees to more than 50. Company president and CEO, Bob Jackson, started the business with his father, Don Jackson, in late 1985 when the two men leased a small office in Sarnia, Ontario's industrial district. Bob Jackson had experience working as an applications engineer for a multi national company. Don Jackson had been the Canadian sales manager for a large industrial manufacturer and had a background in marketing. Initially selling Finite compressed air products, both were convinced they could provide better customer service and better product knowledge. They established a distribution network across the country for the product line that, for the most part, still exists today. They also focused on large scale companies who used large amounts of compressed air.

The first few years were difficult, but slowly Norspec's customer base began to grow and another employee was hired to look after the accounting. Quickly they were asked if they could supply filter products. Before long, they were distributing all types of filters from compressed air, compressor intake filters, lube oil filters, HVAC filters, hydraulic filters and water filters.

Three years into their new venture, Norspec had finally found their niche in the market that changed the future of their company.

Norspec had started to become a single source supplier of filters. They recognized that the demand for this type of service was not met elsewhere and they started concentrating on all major industries across Ontario.

Initially, the two men targeted the filtration requirements of Sarnia's petrochemical industry.

From the onset, Norspec Filtration Ltd. provided as much technical support to their clients as possible. That meant offering the kind of advice that saved customers money and serviced them better.

Before long they were asked if they could supply other filter products. Soon, they were selling filters to automotive assembly plants, steel mills, pulp & paper mills, power plants, and a wide variety of large manufacturing operations.

In 1993, the company experienced another year of enormous growth. To accommodate this growth, the company moved to larger premises. The new premises enabled the company to establish a small air filter manufacturing operation along with its filter distribution business.

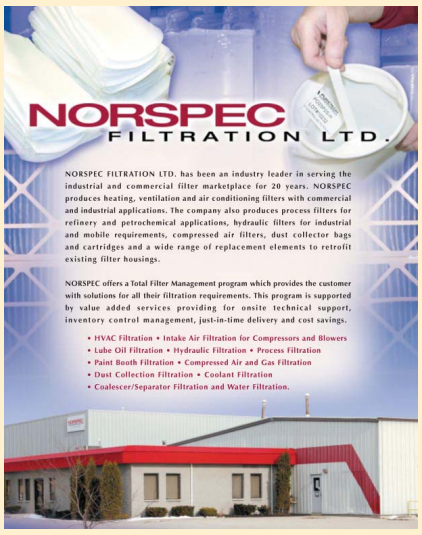
In 1995, the building was expanded to 10,000 sq. ft. In January 1997, Norspec added another 21,000 sq. ft. to accommodate the continuing demand for filters.

In May 1997, the company opened a second sales office and warehouse to satisfy growing customer demand in the Toronto area. Located in Hamilton, the building was 5,000 sq. ft. and catered to all commercial, industrial and automotive accounts.

The company now employed more than 20 people, and Norspec Filtration Ltd. was quickly becoming known as the filter supplier of choice by many companies. It was then that Norspec Filtration Ltd. started to focus on the paint and coatings industries.

Combining their expertise in air filtration with a new line of paper paint arrestors, Norspec sought out all Tier 1 and Tier 2 companies doing any type of spraying or coating of products. Norspec Filtration Ltd. quickly became a recognized supplier in this market segment as well.

In 1999, Norspec began large scale manufacturing of its air filtration products line. This enabled the company to fulfill customer orders much quicker. It meant that





filters, which used to be shipped long distances, could now be made in-house and delivered within 2-3 days to the customer.

In 2004, due to increasing demand for its products in Western Canada, Norspec Filtration Ltd. opened an office and warehouse in Edmonton, AB. It quickly secured a long-term contract for the supply of all filters with a power generation company with facilities across North America.

Today, Norspec Filtration Ltd. is Canada's leading provider of the "Total Filter Management" system program. The company not only manufacturers a full range of air filtration products for the paint and coatings industries, it also represents more than 50 major manufacturers of filters including Purolator Air Filtration, Airguard, Filtrair, FiberBond, Research Products, Smart Media, Facet International, Parker Hannifan, Finite, Shawndra, Hayward, Nugent, Norman, Fairey Arlon, Kaydon, Torit Donaldson, Hytrex, and Shelco.

Norspec's success begins with a commitment to understand their customer's priorities and tailoring its services to serve them best.

They operate many single source supply agreements and or "Total Filter Management" programs with customers across the country. In each instance, Norspec's team of product specialists, customer service representatives, account managers and upper management work together to ensure the process works smoothly.

In 2007, Norspec Filtration Ltd. completed another expansion of their Hamilton operations to more than 20,000 sq. ft. Further expansions are planned for Quebec and Western Canada.

Norspec Filtration Ltd. is committed to providing the finest value available in products, service and support. Their success began with a commitment to understand their customer's priorities and tailoring their services to serve their customers best.

# PPG Industries


There was no shortage of PPG Representation at the Agricultural Manufacturers of Canada Annual Trade Show held in Winnipeg November 27, 2007

### About PPG

PPG Industries was founded in 1883 as the Pittsburgh Plate Glass Co. It was the first commercially successful plate glass factory in the U.S. PPG entered into the chemicals business approximately a decade and a half later to ensure a reliable source of alkali for glass making. In the year 1900, the acquisition of Pittsburgh Paints marked the beginning of PPG's success in the coatings industry.

PPG began operations in Canada when Pittsburgh Plate Glass Co. acquired Murphy Paint Company of Montreal in 1944 and made arrangements to produce Pittsburgh Paints there. 20 years later they opened a manufacturing plant in Mississauga which remains in operation today as a world class, low-cost production facility for automotive primers. In 1997, the acquisition of Phillips Paints Products Ltd. (1968) in Winnipeg enabled small batch manufacturing capability and broadened their technology offering.

Today, through technological breakthroughs, continued diversification and strategic acquisitions, PPG is a leading provider to the Automotive, Industrial, Packaging, Aerospace, Architectural, and Refinish business segments. They are also a leader in the development and manufacturing of Fiber Glass, Performance Glazings and Optical Products. With over 100 years experience under their belt, PPG is the second largest coatings manufacturer in the world with 125 facilities in over 25 countries, and employs more than 34, 000 people globally.

### Technology Highlights

One of PPG's biggest claims to fame in the coatings industry was the development of Electrocoat, which deposits electrically charged paint particles on oppositely charged metal substrates. Their patented ultrafiltration process and anolyte system allowed for closed-loop operation, providing 99 per cent transfer efficiency and minimized waste. As the originators of this technology to the coatings industry, their products and technical expertise remain unmatched. They have over six times more tanks filled in Canada and in North America than their closest competitor. Over the years, their R&D efforts have brought a complete line of e-coat products to the marketplace under the brand name Powercron. Their high-performance, low-VOC, low-cure epoxies and acrylics are approved by numerous original equipment manufacturers including Ford, GM, Snap-On Tools and Whirlpool.

Another area of success for PPG in Canada has been the coil and extrusion market. Their Duranar and Duracron coatings are well known and trusted by architects for the construction of commercial and residential buildings. The coatings meet the specifications of the American Architectural Manufacturers Association (AAMA) which ensures longevity of the products under harsh exterior environments. PPG has the industry's largest selection of colors, and provides a variety of support services including their approved applicator program, and experienced color matching capabilities.

Further west, PPG plays a big role in the Agricultural and Heavy Duty Equipment market, offering products designed to take a beating from hard working machines made by companies including Case New Holland, Doepker Industries Ltd., and New Flyer Industries. Some noteworthy products include an extremely tough glass-filled high build epoxy with outstanding stone chip resistance, and Acrycote, a non-isocyanate two-component topcoat with comparable gloss retention and exterior durability to a urethane without the health and safety concerns that accompany isocyanate use.

PPG's other industrial product lines include Envirocron, their comprehensive powder offering of acrylics, epoxies, hybrids, polyesters and polyurethanes meeting a range of performance specifications, and Coraflon which is a high-performance powder for the extrusion market that meets the AAMA 2605 specification, resisting marring, chipping and erosion. Also offered is a massive portfolio of Spectracron solvent borne coatings for automotive and industrial applications, Aquacron waterborne coatings, and Electroclear for chemically resistant decorative finishes.

Their Architectural Finishes division includes the brands Pittsburgh Paints, Porter Paints, Olympic Stains, Monarch, Lucite and PPG High Performance Coatings which provides fire protective coatings and other protective and marine coatings.

### Product Spotlight: Durabed

Introduced to the market in 2006, this sprayable bed liner is 100 per cent solids. It was initially used on the Nissan Titan line of full-sized pick up trucks, and won the Nissan Global Innovation Award in 2006. Relative to typical aftermarket spray-in bedliners, Durabed has superior outdoor weather resistance that is comparable to long-lasting automotive paint. It can be applied at very low film thicknesses compared to aftermarket bedliners, resulting in less weight and greater fuel economy. It also has excellent resistance to physical damage such as gouging, tearing, and abrasion. Durabed sprayable bedliner also has outstanding chip resistance compared to many other coatings and does not produce the noise and corrosion caused by drop-in plastic bedliners.

### Challenges

It is not breaking news that the strength of the Canadian dollar, increasing raw material and energy costs and globalization are the main factors contributing to the challenging economic climate for manufacturers in Canada. PPG has been forced to find creative ways to manage costs for their customers. They have been focusing on finding solutions through increasing efficiency of processes, both internally and on their customer's production lines. They are constantly looking for ways to bring innovative product ideas to the table in order to make their customers competitive in global markets.

### Why PPG?

Apart from PPG's global presence and comprehensive product offering in a variety of markets and technologies, the true value is in their people. The number one thing that gives PPG a competitive advantage in Canada is the level of technical support and expertise they provide to customers. From the labs to the sales and service teams, PPG individuals are personally accountable for the success of their customers, and strive to truly understand their business.

### Future Growth

Moving forward, PPG is shifting its business portfolio to center on coatings and specialty technology-driven products. The year 2007 has seen big changes for PPG as they made the major acquisition of SigmaKalon Group in the Netherlands, and divested some of their non-core business including their automotive glass and fine chemicals businesses. They are also working to broaden their geographic presence through investments in developing regions. According to CEO Charles Bunch, it is expected that less than 50 per cent of pro-forma sales will be in the U.S. and Canada, with emerging regions representing more than 20 per cent.

This is all the more reason for Canadians to find ways to add value and innovation to their products, and work together with suppliers to remain competitive in the changing economy.

# Alliance Plastics

**Alliance Plastics** manufactures and distributes an ever-increasing line of components to protect and finish your products. In short, **we protect what you produce!**

Our new 2008 Product Catalog offers more than 6,000 unique parts, with 800 protection products added just this year. Individual samples of any part are shipped FREE of charge, and we offer seven different standard sample packs of our most popular products. Try before you buy!

Our latest major additions to the Alliance offering are Handles and Knobs, new Hose Protection products, and environmentally-friendly Paper Caps and Plugs. Each new manufacturing challenge in the industrial marketplace spurs Alliance Plastics to innovate with new and expanded product lines.

Need exact quantities of your protection products? No problem! Alliance Plastics ships broken carton quantities, so you buy only what you need. If your project requires 597 threaded plugs, why buy 1,000? or 5000? We have adapted our methods to meet YOUR needs; that's the way it should be!

Our customer service representatives are friendly, knowledgeable, and ready to help you find the right product for your needs. Our product managers possess a wealth of knowledge about the materials and applications of our components, and are committed to putting their expertise to work for you.

As more and more manufacturers find out about the Alliance difference, we continue to grow and expand our operations. Our warehouse is stocked with 250 million parts, ready for immediate shipment by our 9 North American locations.

Alliance Plastics manufactures and distributes a wide range of protection and finishing products including: Caps & Plugs, Plastic Netting, Industrial Gas Protection Products, Tube Inserts & Glides, Adjustable Feet, Plastic Grips, Wire Management Products, Grommets, Bushings, Cable Ties, Plastic Tubing, Pipe & Flange Protectors, Plastic Hose Wraps, Textile Covers, and Nylon Fasteners.

Call us at 800-847-0486
Visit us at allianceplastics.com
E-mail us at: sales1@allianceplastics.com

**2 CANADIAN STOCKING LOCATIONS**
2538 Speers Road, Unit 7
Oakville, Ontario, Canada L6L 5K9

4610-97 Street
Alberta, Edmonton, Canada T6E 5N9


# Andicor Specialty Chemicals

**Andicor Specialty Chemicals Corporation** is a full-service national distributor of specialty chemicals and packaging for the Paint and Coatings, Industrial Specialties (including Building Products, Adhesives and Sealants), and Plastics markets.

Andicor's mission is to be a seamless extension of the suppliers it represents, offering:

- competitively-priced value-added products from some of the world's leading producers
- superior customer service
- knowledgeable and responsive sales staff
- local warehousing and delivery services

Andicor first began operations in January 2003, representing Chemirco Chemicals (now SI Group Canada), Canada's leading producer of alkyd resins for the paint and coatings market.

Within months of its inception, Andicor represented a number of key suppliers, which became the foundation for future growth, including Sud-Chemie (rheological and performance additives for the paint, ink, and building products markets, and now owned by Southern Clay Products), U.S. Can (paint, plastic, and general line cans, now part of Ball Aerosol & Specialty Packaging), and Fuji-Silysia (micronized silica gels, used primarily as matting agents for coil and wood coatings).

Over the following months and years, Andicor added other key suppliers to complement their existing product lines, including Georgia Industrial Minerals (mica), Phoenix Container (steel pails), Rutgers Chemicals (hydrocarbon resins), and Wayne Pigment (anticorrosion and tannin stain-inhibiting pigments).

Andicor expects to continue growing in a controlled manner, ensuring that their existing supplier partners are well-represented before considering others. Just last year (2007) Andicor was appointed Canadian distributor of Araldite epoxy resins and Aradur epoxy hardeners for Huntsman Advanced Materials and Eastern Canadian distributor for Chemguard fluorosurfactants.

Andicor is headquartered in Mississauga, Ontario, with warehousing located in key locations across the country, ensuring same or next-day delivery to virtually their entire customer base.

Andicor is a sales and service-oriented distributor with sales representation across Canada, with the expectation of increasing its sales staff in the near future. At the same time, Andicor employs its own regulatory affairs person to ensure compliance with all government regulations.

Andicor is a member of CACD (Canadian Association of Chemical Distributors) and CPCA (Canadian Paint & Coatings Association).

Given the success they have enjoyed in their first 5 years of operation, Andicor is well positioned to reach their goal of becoming one of Canada's leading specialty chemical and packaging distributors.

**Andicor's staff currently is:**
*Steve Waters* President & CEO
*John Roeleveld* V.P. Sales & Marketing
*Ron Jerome* CFO
*Don Martyn* Regional Sales Manager, Ontario and Manitoba
*Xavier Massé* Sales Representative, Eastern Canada
P: (514) 488-8998 F: (514) 276-5745
*Ray Nordstrand* Regional Sales Manager, Western Canada
P: (604) 931-4002 F: (604) 931-4007
*Paul Jaworski*, Regulatory Affairs and Product Development Manager
*Julie Laurin*, *Linda Maclean*, and *Thomas Puskas* Customer Service

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Toll-Free: 866-488-0003

To request more information, call our toll-free number or email us at info@andicor.com

# Canadian Finishing Systems Ltd. (CFS)

**Canadian Finishing Systems Ltd. (CFS)** is a Canadian owned and operated distributor of a number of significant manufacturers and additionally is able to provide a vast number of Canadian Finishing formulated processes. The Company also handles a broad range of equipment, basic chemicals, strippers, solvents, masking materials and provides technical service and support for all of the products that we supply. Serving a diverse market that includes automotive, electroplaters, anodizers, phosphaters and manufacturers of appliances, fasteners, plumbing, jewellery, electronics, CFS provides customer-proven technologies.

Although the core business has been metal machining, processing, coating and finishing, CFS recognizes that activities in these industry sectors are changing rapidly and CFS is continually refocusing its target markets and product mix to better serve today's industry needs. Closely related to its core business, CFS is promoting environmentally responsible products including cleaners and sanitizers for industrial and maintenance applications, introducing these product lines into the manufacturing and assembly industries, as well as the commercial market.

CFS has extensive experience and expertise in all aspects of metal finishing, including cleaning technology, metal plating, corrosion protection, metal finishing equipment, resource recovery and environmental management. The majority of the CFS staff each has over 25 years of progressive experience in metal finishing.

In addition to the technical capabilities, CFS personnel provide strong experience in marketing and logistics management, as well as cost control and reduction. CFS also has direct access to expertise in Health & Safety, including training. CFS maintains a full service analytical and testing lab at its facility in Burlington and this is augmented with access to laboratories at our suppliers.

**Contact information:**
Telephone: 905-634-5168
E Mail: cfs-Patrick@Cogeco.net
Web Site: www.CanadianFinishing.ca

CFS is ISO 9001:2000 Registered.

**"Our commitment is to provide the highest quality products while offering exceptional customer service, delivered on time at a fair market price."**



# Cefla Finishing

### Who we are

Cefla Finishing has been operating in the wood coating sector for more than 45 years and has long been considered a world leader in this competitive market. Cefla is defined by four distinct characteristics:

We have an ongoing research and development into new coating technologies and processes.

Cefla has top-level support and consulting in defining and achieving finishing requirements for customers.

The company always guarantees the quality of our products.

We are defined by the professionalism and extensiveness of the after-sales service that we give our customers.

### Our Focus

Thanks to its capabilities to continuously improve products, technologies and customer relations, Cefla Finishing has achieved market leadership when it comes to:

Spray Systems for raised and flat panels
Roller Coating Systems for flat panels
Finishing Systems for moulding
Finishing systems for doors and windows
Air treatment systems
Finishing Systems for glass and plastics

### Cefla Finishing is world leader for finishing systems.

It supplies the most complete range of systems specifically designed to coat shaped panels and spray glue. The product range includes 7 different models of automatic sprayers, among which the Easy 2000, up to the highly performing "iBotic" with 6 electronically controlled axes. Any type of coating product can be thoroughly cured thanks to a wide range of vertical and in-line ovens using hot air, infrared and ultraviolet rays. Our extended line of products also includes handling systems to meet any specific needs, and a great vast variety of control software options.

### Service

Customers are our most valuable asset. They rely on us because we have established a long-term partnership based on quality products and efficient service. Cefla Finishing Group Service provides our customers with qualified staff and advanced technology according to their specific requirements. We stand beside our customers throughout the entire life of the products, providing expert advice at any time on any particular problem.


From the prompt spare parts service (with more than 18,000 items in stock), to the over 100 highly skilled technicians and global after-sales service, we respond. Customers deserve this level of response and we are pleased to provide it.

### Quality

Cefla Finishing's prime aim is to gain client's full confidence and satisfaction. The entire Company Group has a policy of continuous improvement of the products and services offered. For this reason, Cefla Finishing was ISO 9001 certified in 1996 (Cefla Finishing was the first manufacturer of finishing plants and machines to obtain this certification and, today, Cefla is still among the few companies that can boast of this important acknowledgement). Cefla Finishing also complies with the VISION 2000 specifications that took over from the ISO 9001 in year 2000. The certification and the rigorous tests that the products received from the suppliers undergo, allow Cefla Finishing to guarantee that the end products supplied to the clients are of the highest grade. Cefla Finishing is a client-oriented company that fully complies with the Vision 2000 specifications in force today and, from time to time, makes thorough investigations to assess client satisfaction levels. This allows Cefla organization to constantly improve its performance and reach the highest excellence.

**"Clients are the actual assets of our company".**

# Conn and Company

**Meeting Mixing And Blending Needs For More That Half A Century**

Conn and Company headquartered in Warren, PA, USA, has been designing and manufacturing industrial mixing equipment for 60 years. Conn builds equipment to meet the customer's requirements with air or electric drive specifications to suit operating conditions; horsepower to suit service conditions; dimensional design to suit operating conditions or existing tank. The company firmly believes in keeping it simple, durable and functional.

Conn provides low shear blending blades or high shear dispersion blades or complete drive assemblies for processing fluid materials such as paints adhesives, inks, cements, urethane foams, chemicals, slurries, grouts, and more.

**The Conn Blades**

Conn and Company recognized the need for blending blades and dispersion blades that provided true pumping action instead of plowing action. The company has brought four patented blades to the market under the trade name Conn Blade.

The ITT style blade has a combination of louvers and teeth, it is a high pumping high shear dispersion blade and is the most efficient and aggressive dispersion blade available.

The IT style has the louvers providing superior pumping action, but without the teeth. It is a high pumping, low shear, blending blade and is excellent for mixing micro spheres or flakes or other fillers that need to be well mixed, but not destroyed. The ITC CONN Blade is an 8-vane open style blade providing excellent material flow, with more shear than the IT, but is not as aggressive as the ITT. The newly patented P-ITT CONN Blade is of UHMW Polyethylene and is excellent for highly corrosive or highly abrasive mixing. The P-ITT CONN Blade is the most efficient and aggressive poly blade available.

The Conn blades are available from 2" diameter to 48" diameter with mounting holes or mounting hubs to retrofit and upgrade a customer's existing equipment. Split construction is available for entry through manways. Conn also manufactures complete units and drive assemblies to mount on your tanks. Conn supplies air or electric utility/laboratory mixers, spool-type top entry for flange mounting to the customer's tank, and drive assemblies for mounting on bridge support for open top tanks. Conn and Company just needs the customer's requirements and will be happy to be of assistance.

Conn handles all worldwide sales from the home office in Warren, PA. Contact Richard C. Freeman at rcfreeman@connblade.com, call 814-723-7980 or fax 814-723-8502. Web site: www.connblade.com

**Conn and Company recognized the need for blending blades and dispersion blades that provided true pumping action instead of plowing action.**



# Cyanide Destruct Systems Inc.

**Cyanide Destruct Systems Inc. Experts in Cyanide Waste Management**

CDS will soon be celebrating its 22nd year in operation! The company has evolved from the first 90 Gallon per day Thermal Hydrolysis System, to today with more than 60 operating systems throughout the world, plus a cyanide waste processing and transfer facility, as well as a partnered precious metal refining plant.

The Thermal Hydrolysis System is the foundation of CDS. This state of the art process takes advantage of a naturally occurring chemical reaction between water and cyanide.

No Chemicals are involved, eliminating the problems associated with the traditional Alkaline Chlorination system, which includes chlorinated by-products and highly toxic cyanogen chloride gas. What really drives the market is that the CDS system destroys all cyanide complexes, even iron to below regulated limits.

CDS Environmental, a subsidiary of CDS Inc. Has been operating for 15 years with an impeccable safety and compliance record. CDS Environmental uses batch systems to treat all types and concentrations of cyanide as well as refining of specific precious metal streams. Scrap gold plated waste is cyanide stripped and 100 per cent recycled.

CDS serves a niche market with a very strong customer base throughout eastern North America. We are small but very good at what we do from customer service to 100 per cent guarantees on our systems.

The latest venture for the company was teaming up with a well respected environmental service company, Envirite inc., and establishing a specialized precious metal refining plant in York PA. CD&E Refining LLC. was created to serve our US based customers.



**"CDS serves a niche market with a very strong customer base throughout eastern North America."**

# DeFelsko Corporation – *40 years of Quality*

DeFelsko, a U.S. manufacturer of coating thickness gages and inspection instruments, offers a variety of instruments designed specifically to meet the paint industry's requirements.

The popular *PosiTector 6000* Coating Thickness Gage has new tougher, smarter features. Still simple, durable and accurate, the American made *PosiTector 6000* retains all of its simplicity and functionality for measuring coatings on all metals.

Tough new features include large impact-resistant Lexan display, IP5X ingress protection and protective rubber holster. As always, tough probes, robust housing and a strong warranty make the *PosiTector 6000* the right choice for coating applicators, inspectors, platers, anodizers and more. A wide range of probes are available for a variety of applications.

DeFelsko's revolutionary *PosiTector 200* Series gages measure coatings on non-metals such as wood, concrete, fiberglass and more. Specifically designed to measure coatings including paint, powder, varnish, etc, the *PosiTector 200* is an affordable choice to quickly and accurately check coating thickness.

"The popular PosiTector 6000 Coating Thickness Gage has new tougher, smarter features."

DeFelsko also offers quality inspection instruments including the Digital PosiTest Adhesion Tester, the NEW *PosiTector Dew Point Meter* with available Magnetic Surface Temperature Probe Kit (optional) and *PosiTector Ultrasonic Thickness Gage* with your choice of standard or multiple echo-thru paint gages.

Call DeFelsko at 800-448-3835 or visit our website at www.defelsko.com to get assistance selecting the optimal instrument for your application or to request brochures of any of our quality gages.


"A wide range of probes are available for a variety of applications."



# EXEL North America

**EXEL North America** is a World Leader in *"Making Manufacturers More Competitive™"* with special application equipment for pumping and finishing applications. Our history spans 75 years of providing optimum solutions using high quality innovative and reliable equipment and is made up of employees with a *"Mission-to-Serve and a Sense-of-Urgency"* philosophy. Our product range is among the widest starting with our Kremlin Airmix® spray guns to "state of the art" pumping and proportioning systems for all material types.


EXEL North America's mission is *"Making Manufacturers More Competitive™"* in controlled applications for liquids, powders, sealants, adhesives, mold release agents, oils, paints, sealers, primers, waxes and any other flowing powder or fluid product.

EXEL helps their customers' *"Maximize their Finishing Profitability"* by providing the most extensive wood finishing equipment and innovative solutions. EXEL is well-known for their successes with their Airmix® technology. *"Nothing Compares to the Power of Airmix®"* when looking for an outstanding finish at industrial production rates that delivers unbelievable transfer efficiencies. Airmix® is the oldest, most proven medium pressure technology in the world with a 30-year track record of serving thousands of satisfied customers throughout the world.

EXEL North America is also known for *"Bringing Innovation to Pumping"*. We carry a wide selection of pump systems to meet the needs of our customers.

The EXEL products that are available to the General Industrial markets are Powder coating application equipment, Liquid Electrostatics finishing equipment, Non-Electrostatics finishing equipment, and fluid delivery. Nothing compares to the performance and efficiency of our products. Our Plural Component product line provides accuracy and simplicity of maintenance and operations.

EXEL makes manufacturers more competitive with ongoing training of its people in Solution and Service Centers throughout the world. These are people who bring the best application solution backed by effective and proactive service. We also build the widest, most innovative range of high performance and quality products. EXEL has an ongoing commitment to research and development. EXEL is constantly researching the needs of our end-users and enhancing our existing product lines or manufacturing new products that meet the customers' needs.

# Electro-Stream Generator Corporation

In the year 1952, the use of pressurized steam was widely being used in many industries. W.J. Fitzgerald began manufacturing small, compact electric boilers in Alexandria, VA. Fitzgerald brought his expertise of the dry cleaning application to the new manufacturing facility. Knowing how to utilize steam for cleaning and sterilization, the units were built for autoclaves in medical use. The need for stainless steel units as well as "explosive proof" systems expanded the area of expertise. Presently, the Electro-Steam Generators are shipped world wide serving areas of oil fields, wineries, food and pharmaceutical industries. Many steam rooms in health centers own one of the units.

Preparing metal with an iron phosphate conversion coating had become a standard. This application required a clean substrate as well as good coating weight of the conversion coating. Electro-Stream Generator Corporation completed their steam system with a wand for cleaning. By using the steam as a vehicle to obtain the chemical water mixture, the unit would clean and phosphatize the metal with a pre-measured concentration. Likewise, by using only the hot dry steam the part could be rinsed with no water as effluent. The hot steam leaves a rapidly drying surface. This manual application gave the job shop a means of cleaning and phosphatizing using the least amount of chemical water in their application. Options are available now whereas the users have several versatile cleaning methods. Electro-steam Generator Corporation continued to build generators for many areas of industries in Alexandria, VA. Upon the retirement of Fitzgerald in the late 1980s, the company was sold to a Corporation in Rancocas, NJ, and a modern manufacturing facility was initiated there. All of the steam generators are built at this US plant. Each boiler is built in accordance to ASME, National Board of Shop Inspection UL. All units meet the boiler specifications for the US and Canada.

Experienced personnel are available to discuss the metal surface preparation in the job shop and recommend the size unit with applicable accessories to provide a complete cleaning/metal preparation using the least amount of chemical water by the job shop.

**"By using the steam as a vehicle to obtain the chemical water mixture, the unit would clean and phosphatize the metal with a pre-measured concentration."**





# DuPont Titanium Technologies

DuPont Titanium Technologies is the world's largest manufacturer of titanium dioxide, serving customers globally in the coatings, paper and plastics industries. DuPont is in the early stages of building a world-scale manufacturing plant at Dongying, China. DuPont currently operates plants at DeLisle, Miss.; New Johnsonville, Tenn.; Edge Moor, Del.; Altamira, Mexico; and Kuan Yin, Taiwan, as well as a finishing plant at Uberaba, Brazil. All of the production plants use the chloride manufacturing process. Technical service centers are located in Uberaba; Mechelen, Belgium; Kuan Yin; Wilmington, Del.; and Shanghai, China, to serve the European, Middle Eastern, U.S. and Asian markets. DuPont operates a titanium ore mine near Starke, Fla.

Today consumers and contractors expect paints to deliver optimal performance, with excellent coverage and appearance. DuPont Titanium Technologies responds to these needs by continually developing new grades to provide greater value to the coatings manufacturer and coatings consumer. DuPont™ TS-6200 is a super durable product offering excellent gloss retention and durability that is unequalled in the marketplace. It is specifically designed for applications demanding high initial haze-free gloss and a high degree of gloss and tint retention over the life of the coating. DuPont™ TS-6200 delivers exterior protection by balancing weathering and gloss performance.

DuPont™ Ti-Pure® R-902+, another product in DuPont's offering, is a multi-purposeTiO2 that delivers superior dispersion and hiding power over a wide range of coatings systems. Use of Ti-Pure® R-902+ will provide excellent coatings coverage and may allow coatings producers to reduce the coating raw material costs by decreasing the TiO2 content of paint versus other TiO2 products.

With a focus on supply reliability and quality, DuPont Titanium Technologies has been delivering world-class Ti-Pure® products for more than 70 years. Its global network of manufacturing facilities ensures sourcing flexibility and security of supply.

The DuPont offering is much more than titanium dioxide – it is the total package of superior product, technical service and customer support. DuPont Titanium Technologies works closely with customers to assure that the product line delivers on what is promised. DuPont Titanium Technologies is available when

issues arise. As a customer focused organization, DuPont Titanium Technologies is available to answer questions and provide technical support and its website, www.titanium.dupont.com provides an abundance of product information and formulation advice which can be accessed 24/7. In addition to the information available online, customers value the rapid response when contacting DuPont Titanium Technologies though the website.

DuPont Titanium Technologies continually invests in R&D. The value of advanced technologies for award winning products is recognized throughout DuPont. The business invests millions of dollars every year on developing the next generation of titanium dioxide and works continuously to upgrade the existing products to keep them best in class.

DUPONT®

# Fischer Technology

## FISCHER TECHNOLOGY OFFERS A FULL LINE OF COATING THICKNESS MEASUREMENT AND MATERIAL TESTING INSTRUMENTS

Fischer Technology, Inc. has been an innovative leader in the field of non-destructive thickness measurement and material testing instruments since 1953. Solutions are available for coating thickness measurement using the X-ray fluorescence, beta backscatter, magnetic induction, eddy current and coulometric methods. Fischer also offers solutions for measurement of microhardness, conductivity, ferrite content and porosity testing.

**Fischer's MP series of handheld instruments:**
The DUALSCOPE®MP20E is a versatile solution for users who need to measure on ferrous and /or non-ferrous substrates. On its large, easy-to-read LCD display, the MP20 offers full statistical evaluation of a measurement series; automatic material recognition, simple calibration, as well as additional corrective and master calibration.

The Fischer MP30E-R and MP30E-S units are available in two models: The DELTASCOPE® measures all non-conductive and non-metallic coatings on iron and steel

using the magnetic induction method; the ISOSCOPE® measures non-conductive coatings on non-ferrous base metals using the eddy current method. The instruments are equipped with either a bi-directional RS232 interface (Version "S") for connection to a printer or computer or Version "R", a unidirectional radio interface, transfers measurement data to a computer using a measurement software program such as FISCHER PC-DATEX and opens the possibility to integrate this hand held coating thickness measuring instrument into a powerful workstation with full SPC/SQC capability.

The DUALSCOPE® MP40E-S and MP40-R can automatically detect the base material and then apply the appropriate measurement method – either eddy current or magnetic induction. This combination enables the user to measure in random order paint, plastic, and organic coatings on nonferrous metals and on steel, and nonferrous metal coatings (such as chromium, copper, zinc etc) on steel with one and the same instrument. The MP40-R measurement data can be transferred wirelessly into an excel spreadsheet using a unidirectional radio interface. The MP40E-S version features a bi-directional RS232 interface that transfers measurement data to a computer. All of the above instruments have a wide variety of interchangeable Fischer "Smart Probes."

Fasteners and other small plated parts can be measured using the Fischer PHASCOPE® PMP10. In addition to the advantage of measuring nuts, bolts, and screws with the PHASCOPE® PMP10, Fischer has developed the PHASCOPE® DUPLEX for individual thickness values of multi-layer coatings used in the automotive and appliance industries.

The MP0R Series has an integrated measurement probe for quick and easy results. Unique features of the MP0R gauges include two displays and wireless data transfer to a PC for data documentation and inspection reports.

**FISCHERSCOPE® Analysis and XRF instruments:**
Fischer Technology also offers multiple solutions for the Mandatory Environmental Compliance for the restriction of hazardous substances according to RoHS and WEEE. The Fischer X-ray fluorescence material analysis instruments the FISCHERSCOPE® X-RAY XAN® and XDAL® identify the content of prohibited metals. These X-ray systems provide direct results of the concentrations for lead (Pb,) mercury (Hg), hexavalent chromium (Cr,VI), polyborominated diphenyl ethers (PBE), and Cd. The user can immediately identify, by means of a red colored warning, if the concentration of the prohibited substance exceeds the allowed threshold. These XRF systems are also capable of analyzing multi-layer electronic components such as SnPb/Ni/Ag-Pb/Pb-Ceramic and general material testing analysis of plating bath solutions.

Fischer has been developing, manufacturing, and distributing X-ray fluorescence instruments for coating thickness measurement and material analysis for over 25 years. Fischer also offers instrumentation for micro-hardness testing and coating thickness measurement. The principles of X-Ray fluorescence, magnetic induction and eddy current are incorporated into handheld, bench top and laboratory instruments.

For more information contact
Fischer Technology, Inc., 750 Marshall Phelps Rd.,
Windsor, CT 06095
(800) 243-8417 (860) 683-0781 FAX: (860) 688-8496
E-mail: info@fischer-technology.com
Web site: gy.com www.fischer-technology.com



# Process Electronics Corp. (PEC)

**Process Electronics Corp.** (PEC) has been in North Carolina as a sole corporation since 1988. It was formed in 1984 in Michigan.

PEC is a subsidiary of OMI International Corporation. OMI was headquartered in Warren, Michigan. OMI adapted its name when George B. Berry purchased Oxy Metal Industrial Corporation in October 1983. This Corporation one of the major chemical producers in the US was best known for its biggest unit, Udylite, an important part of the Detroit area industrial economy for many years. Udylite was founded in 1919 in Kokoma, Indiana by Marvin J. Udy, who developed a method of electrode deposition of cadmium on metal. In 1927, the company moved to Detroit. Over the years, Udylite developed many new electroplating processes.

Process Electronics Corporation and OMI International Corporation were granted exclusive United States sales, marketing and manufacturing rights for the full line of Udylite DC power supplies and process controls.

OMI International Corporation was sold and divided in 1988. George Berry relocated PEC to Gastonia, NC.

Today, PEC manufactures the Udylite Brand Rectifier in Mt. Holly, NC and strives to make its predecessors proud. No product leaves the building without thorough inspection and stamp of approval by quality control. The company has 19 employees, and a rarity in the industry, is a woman owned business. The company's product lines include the Sealed Automatic Solid State DC Power Conversion, Microprocessor-based air-cooled solid-state DC power convertor, Miniverter, Monopolarizer and PC-10. PEC maintains trust and a good relationship with customers and the longevity of the Udylite brand keeps them interested. The engineering department is staffed with highly skilled specialists, some who have been designing products for the company for 30 years. The skilled production personnel produces virtually every major assembly "in-house", and the winding station produces a wide variety of transformer coils (aluminum and copper) to satisfy any customer requirement. PEC's customer service is friendly and there is a 24-hour emergency line. Computer-savvy customers have access to ordering online, but the company still completely believes in face to face, phone service…computers do not take the place of people.

Many remember George B. Berry, as a truly remarkable man. His untimely death in 1996 was a shock to many. His wife, Carolyn continues to oversee PEC. His daughter Rebecca is Vice President and runs the day-to-day operations.



**From the Desk of Rebecca Berry,**
The characteristics I admire most about my Father is that he was not only intelligent and hard working, but more importantly fair and honest. His strong attributes manifested into a dynamic coaction. This compels me to live and work by his noble standards each day. We, at PEC, follow those values throughout the process. We believe and car about the customer, the Service and the Product.

To you, our Customer, Process Electronics Corporation wants you to be part of our Team! We're as anxious as ever to serve your needs.

Let me know what I can do to help!

Sincerely,
Rebecca Berry
Vice President
Process Electronics Corp.
P.O. Box 505
Mt. Holly, NC 28120 USA
Tel: 704-827-9019
fax: 704-827-9595

# Imbotec Group

**Old Fashioned Service and Knowledge**

Imbotec Group was founded in the 90's to serve the coatings industry customers with old fashioned service and knowledge as an alternative to catalogue companies and others just providing product.

Our international customers praise us for responsiveness and for our solutions, always saving them thousands of dollars through a combination of the correct solution and lower prices compared to other companies.

Imbotec's president, Mr. Imbault, while being an engineer, has been selling instruments for over 20 years worldwide and utilizes a consultative approach to business, understanding customer's requirements for their specific needs and procedures. We also communicate with our customers in their native tongue as our staff speaks all national languages in Canada, the U.S. and South America.

The Imbotec Group headquarters, located in Brampton, ON with satellite offices in North America provides not only sales and training, but repairs and certifications for film thickness coating gauges, gloss meters, colour spectrophotometers, lightbooths, moisture measurement and other equipment. Our field service personnel are factory trained and have turn around times of one day or hours for emergency situations.

From our humble beginnings, we have continued to grow in sales and have been awarded the status as the only factory authorized service and calibrations house for one major gloss measurement company, as an example.

Some of our major product lines consist of QNIX and DeFelsko Coating Gauges, Rhopoint Novo Gloss and Byk Gardner Gloss, Haze, DOI, X-Rite, etc.

We can provide solutions for many areas such as abrasion, adhesion, balances, impact and more. Customers can find a complete line of laboratory testing products from a single knowledgeable source. Imbotec Group also manufactures an industrial gloss sensor used on process lines and has the capability to measure moisture and colour inline.

Our customer service is unparalleled in flexibility and satisfaction with onsite demonstrations and staff training if required and some loaner equipment.

Visit our two websites at www.gloss-meters.com and www.imbotec.com and see for yourself our solutions.



# Paintronic Systems (1994)

**Customized Powder Finishing Solutions**

Paintronic Systems (1994) is defined by innovative powder equipment design, cost competitive prices and top notch service. Paintronics is a privately owned and operated Canadian company with a long history of unique design capability. They listen to clients in order to develop and implement a system tailored to specific finishing requirements.

Since the early 1980s, Paintronics Systems has approached each project as an opportunity to improve equipment design and functionality.

Since the early 1980s Paintronic Systems has approached each project as an opportunity to improve equipment design and functionality.

Our mandate is to provide a solution unique to each customer's specific coating requirements. The installation of an individually engineered package results in overall improvements to productivity, quality of product, and a reduction in industrial emissions.

Equipment manufactured by our company has been designed to supply many different types of clients throughout the world including automotive, manufacturers, custom coating shops and other industrial customers.

With the goal of keeping our customers on the leading edge of technology we opted to discontinue our Powdermaster 500 and became the Canadian distributor for Parker Ionics powder application equipment, Westland, Michigan, USA.

Parkers' revolutionary "Pulse Power" technology is the first and only corona charging method that pulses the gun output on and off, preventing the build-up of free ions, providing better penetration, minimizing back ionization, providing ultra smooth finishes. Powder coaters can now spray Faraday cage areas, metallics and recoats without making any gun control adjustments or using/changing to specialty tips and nozzles. Gun output is set to 100 per cent all of the time maximizing transfer efficiency and improving overall part finish.

Automatic control systems are PLC capable and for installations where powder output control is critical there is "JustFeed" which monitors and adjusts powder output within 2.5 per cent of a preset value. A multi-box feed system to speed colour change times and limit cross contamination is also available.

Manual powder coating packages are available with a variety of hopper sizes (2litre, 40litre and 60litre), a vibrating box feeder, or lab/cup gun configurations.

Please contact us for additional information or to discuss how this new technology might benefit you and your customers. Information is also available on our website.

Paintronic Systems (1994)
1145 Bellamy Road N., Unit #9
Scarborough, Ontario, M1H 1H5
tel (416) 431-1433
fax (416) 431-4214
Web Site: www.paintronicsystems.com




GX7000 Powder Application

# Torrid Oven PFS Ltd.

The company was started in Toronto in 1962 and is a recognized leader, designer and manufacturer of custom-engineered paint finishing systems and heat processing machinery.

It was here that "turnkey responsibility" for paint finishing systems was pioneered. Torrid Oven is now a dominant force in the Canadian paint finishing scene. The company has continued to grow and serve the United States, Canada and Mexico. "98 per cent first-time-through capability" produces both profits and high-quality finishes.

Today, Torrid is an experienced builder of finishing systems for both liquid and powder paint with a proven track record in the installation of many first-class installations worldwide.

Unlike the multinationals, we have not diluted our interests by diversifying into extraneous areas. We are totally committed to every aspect of paint finishing and are a fully integrated "design-build-install" systems group.

Our greatest strength, however, is our people. With the exception of some staff additions, our design engineers and project managers have over 20 years experience each in the industry, most of it with Torrid. This irreplaceable asset is clearly reflected in our ability to help our customers meet their ever-increasing requirements for better finishing quality.

Left to Right: Jef Muyshondt, President; Pat Jannetta, Engineering Manager; Jeff Hummel, Vice President, Sales.

As with most companies, our people are the key to our organization. Torrid employees are committed to providing equipment and services with proven reliability, which emphasize quality. This pursuit of "Excellence in Finishing" is part of the vision in our mission statement.

Torrid offers our clients a highly qualified staff of development engineers and program managers who are specialists in paint finishing systems. Torrid has at their disposal countless man years of professional experience and complete CAD/CAM capabilities to custom design the most sophisticated finishing systems. Our dedicated design team can analyze problems and recommend the most efficient and practical equipment for your finishing needs.

As a premier supplier of industrial turnkey finishing systems with over 1000 industrial installations worldwide, our expertise and track record speaks for itself.

**Products and Services**

CLEAN ROOM FINISHING TECHNOLOGY - More turnkey systems installed for Tier One automotive suppliers than any other vendor.

CLEAN ROOM OVENS - Filtered "downflow" airflow eliminates turbulence and dirt. "Still air" Blackwall Radiant Preheat zones set coating prior to entry into convection zone. Unique panel construction for outdoor ovens.

ELECTROCOATING - Both anodic and cathodic design for prime and top coat painting; conveyorized and program hoist systems meet every production requirement.

HI-PERFORMANCE SPRAYBOOTHS - Custom designed for "Clean Room" paint application. Water shrouds protect work racks and reduce potential of dirt contamination. Laminar airflow design eliminates turbulence and airborne dirt.

PAINT SLUDGE DISPOSAL - Packaged waste system. Automated system collects, concentrates, dewaters and packages for economical disposal in landfill.

PAINT KITCHENS - Fully engineered for continuous operation without down time. Systems can handle both plural component (2K) and waterborne coatings for every application need.

AIR POLLUTION CONTROL - New technology fume concentration and fume incineration – 90 per cent+ heat recovery. Full V.O.C. and odour abatement.

WASTE WATER TREATMENT - ZERO DISCHARGE - Engineered treatment systems permit full reuse of waste water - no discharge to sewer. Rinse management reduces water use and chemical costs.

FINISHING CONVEYORS - For inverse product support. Eliminates dirt contamination. Rugged, simple and cost effective.

Since our inception, long before "continuous improvement" became the catch phrase it is today, Torrid recognized the importance of innovative new design and leading edge technology. The keys to our success have been a combination of ingenuity blended with outstanding design and professional engineering capability.

The simple philosophy of making the customer our number one priority continues to please our client base. By taking pride in every installation we ensure that our products perform at the highest standard and that our customers receive greater manufacturing productivity at an economical first cost.

With finishing systems becoming more sophisticated in terms of automation, environmental controls, energy savings, and the unrelenting pressure for more value at the same cost, Torrid is evolving to maintain a leadership position in this new economy.



# IN THE NEWS

*continued from page 9*

polymers, and UCAR POLYPHOBE rheology modifiers.

These increases apply to all market segments, including architectural and industrial coatings, construction products, adhesives and sealants, and traffic coatings. The ongoing escalation in all costs related to the manufacture of these products, particularly feedstock, energy and transportation costs, continues to drive these increases.

Dow has also increased North American list and off-list prices of certain CARBOWAX™ and CARBOWAX™ SENTRY™ Polyethylene Glycols (PEGs), Methoxypolyethylene Glycols (MPEGs) and other polyglycol products.

Dow Biocides, a business group of The Dow Chemical Co., has announced a price increase for both list and off-list prices of its solid DBNPA and its entire glutaraldehyde product portfolios.

The company says these increases are driven by strong demand and persistently high raw material costs.

**DSM NeoResins+ Increases Price for Solventborne Resins**

DSM NeoResins+ will increase prices for solventborne resins in the Europe, Middle East and Africa regions. Effective March 1, 2008, prices will increase by 10 percent, as existing contracts allow. The increase affects alkyd, acrylic and amino solvent-based resins. The price increase is due to higher raw material, transportation and energy costs.

DSM has raised prices for its Uralac polyester powder coating resin range sold in North America by $0.05/lb. These prices will be effective for all orders shipped on or after January 1, 2008, or as otherwise permitted by the terms and conditions of customer contracts.

**BASF Price Increases**

BASF Corporation has announced that it will increase prices on all of its Industrial Coatings Solutions product lines between five and eight percent effective March 1, 2008, or as contracts allow. The price increase pertains to the North American industrial coatings markets only and is necessary due to escalating energy, transportation and raw material costs in the region.

BASF has also increased the price of all toluene diisocyanate (TDI) products by $0.20 cents per pound in North America effective February 1, 2008, or as allowed by contract. The company says this price increase is due to continuing price escalation of feedstocks and unprecedented global demand.

Effective January 1, 2008, or as allowed by contract, BASF has increased all list and off-list prices in North America for its polyetheramine products as follows: polyetheramine D230 (PEA D230) U.S. $0.10 per pound; polyetheramine D2000 (PEA D2000) U.S. $0.10 per pound; polyetheramine D400 (PEA D400) U.S. $0.12 per pound; polyetheramine T403 (PEA T403) U.S. $0.12 per pound; and polyetheramine T5000 (PEA T5000) U.S. $0.12 per pound.

BASF has also increased resin prices an average of 10 per cent in the industrial coatings market effective January 1, 2008, or as contracts allow. The price increase includes, but is not limited to, the following product lines: Basonat®, Laroflex®, Laromer®, Laropal®, Lucirin®, Luhydran®, Luwipal® and Plastopal®. The price adjustments pertain to North American coatings markets only and the company says they are necessary due to escalating energy, transportation and raw material costs in the region.

Effective January 1, 2008, or as contracts allow, BASF will also increase prices globally for kaolin clay sold to the paper and specialty markets. The amount of the increase will be dependant on the kaolin product, with increases up to U.S. $18.00 per short ton (U.S.$19.80 per metric ton) for hydrous products and up to U.S. $50.00 per short ton (U.S. $55.00 per metric ton) for calcined products. Select specialty products may incur greater increases.

In December BASF increased its prices by $US 0.05 per wet pound in the United States and Canada on all Acronal Optive all-acrylic latex and Acronal styrene-acrylic latex products used in the adhesives and fiber bonding, architectural coatings and construction markets.

Again, the company says this action is necessary due to significant increases in raw material, feedstock, freight and energy costs.

**Cytec Specialty Additives and UV/EB Curables**

Cytec Industries Inc., a global specialty chemicals and materials company, recently announced a price increase in its AEROSOL surfactant product line within its Specialty Additives portfolio. This adjustment is being implemented due to sustained pricing pressures on the global supply chain including raw materials, logistics, energy and packaging costs. Cytec has also increased the prices of its portfolio of UV/EB curable monomers, oligomers and photoinitiators in the Americas for orders shipped on or after January 1, 2008. Prices will advance between five to eight percent depending on the product family.

**Rohm and Haas Increase for Acrylic Based Emulsions**

Rohm and Haas', Packaging and Building Materials business has increased prices for all acrylic and styrene acrylic based emulsions sold to the North American pressure sensitive adhesives, textile non-woven, construction, adhesives and packaging industries. The increase of 6 to 8 per cent will be effective immediately, or as contracts allow.

All Robond and Rhoplex emulsions will be impacted by this increase, which the company says is required to offset the continuing escalation in all major petrochemical feedstocks costs which continue to reach record levels.

**Huntsman to Increase Polyols and Polyurethane Systems Prices**

Huntsman Corporation, North America's largest producer of MDI, recently increased its Polyurethanes division prices in the NAFTA region for JEFFOL polyols and all polyurethane systems by $0.10 per pound effective February 1, 2008, or as applicable contracts allow.

Huntsman said the price increases reflect rapidly increasing raw material feedstock costs.

**Perstorp Announces Price Increase**

Perstorp has increased the price for pentaerythritol by EUR 220/MT in Europe, 10 c/lb in the Americas and U.S. $340/MT in all other markets, and trimethylolpropane by EUR 210/MT in Europe, 15 c/lb in North America and U.S. $330/MT in all other markets. Neopentyl Glycol (Neo) will increase by EUR 150/MT in Europe, 10 c/lb in North America and U.S. $220/MT on all other markets. The price for NX 795 ester alcohol will increase in Europe by EUR 50/MT and in overseas markets by U.S. $75/MT.

Perstorp is also increasing prices of specialty polyols as follows: Di-Penta by EUR 300/MT or $450/MT; Di-TMP by EUR 150/MT or $220/MT; Bis-MPA by EUR 200/MT or $300/MT; BEPD by EUR 200/MT or $300/MT; Micronized by EUR 300/MT or $450/MT; Polyol PX by EUR 50/MT or $75/MT; Boltorn by EUR 300/MT or $450/MT; Alkoxylates by EUR 150/MT or $220/MT; Allylethers by EUR 200/MT or $300/MT; and CTF by EUR 200/MT or $300/MT.

**Eliokem Announces Worldwide Price Increase**

Eliokem has announced a worldwide price increase across the range of all its coatings resins, Pliolite, Plioway, Hydro Pliolite and Pliotec. The price increase of up to 10 per cent came into effect on January 1, 2008.

**Pricing Change for CCP Coatings Resins**

Cook Composites and Polymers (CCP) has implemented a $.05 to $.08 per pound increase in price for all alkyd, acrylic and polyester products. Pricing on acrylic emulsions for coatings applications increased by $.03 per pound, and powder-coating resins will increase by $.08 per pound.

**OPC Polymers Announces Price Increase**

OPC Polymers has increased prices across all product lines, effective January 1, 2008. Most products will increase between five percent and 12 per cent due to large increased costs of vegetable oils, solvents, polyols and most other critical raw materials. All customers will receive a letter advising actual increase amounts for their products of interest

# THE WHITE OUTLOOK Titanium Dioxide

If you want "white" you want TiO2.This important pigment is so widely used that it has a worldwide annual consumption of more than five million tons, worth about $10 billion (U.S.). Titanium dioxide (TiO2) is an inorganic white pigment used in paint, coatings, plastics, paper and many other everyday products. Titanium dioxide ranks fifth of all inorganic industrial chemicals, and the paint industry accounts for roughly 60 per cent of the production. Meanwhile, when it comes to coatings, research and development into performance improvements are ongoing.

Industry trade shows are an excellent resource to see first hand what is being done with TiO2.

## PRICING

As with just about all raw materials, TiO2 producers are raising their prices.

According to ICIS news, North American TiO2 market prices leveled out in the third quarter of 2007 after going down all year, with a few buyers reporting further price changes of a few cents.

In late September, producers began to push for increases, which they initially proposed in June. However, the sluggish US housing market caused slow TiO2 demand in coatings.

In January 2008, Tronox Incorporated, on behalf of its subsidiary companies, announced price increases for all TRONOX titanium dioxide grades sold in the United States, Canada, Mexico and Latin America.

The following price increases were effective Jan. 15, 2008, or as contracts allow:

- US$0.06 per pound in the United States and Canada
- US$130 per tonne in Mexico and Latin America

These increases are in addition to the previously announced price increases in these regions, and other increases may be announced locally within each region.Tronix as well as other producers of TiO2 say these increases are needed to help offset the escalating input costs, and support margins and reinvestment required to meet the needs of global customers. Rising energy costs

continue to place pressure on titanium dioxide suppliers who have in turn been forced to raise prices.The pigment requires a lot of energy to manufacture and ship.

Headquartered in Oklahoma City, Tronox is the world's third-largest producer and marketer of titanium dioxide pigment, with an annual production capacity of 642,000 tonnes.The company's five pigment plants, which are located in the United States, Australia, Germany and the Netherlands, supply high-performance products to approximately 1,100 customers in 100 countries.

DuPont also recently announced global price increases.Their DeLisle site celebrates its 29th anniversary in 2008, with production Line 1 of the facility having come online in 1979.Through the years, the site has added a second production line and grown to staff more than 500 DuPont employees and more than 500 contract employees.

The DeLisle facility produces ten per cent of the world's supply of Titanium Dioxide (TiO2) for the coatings and plastics markets. DuPont says it is a pioneer in titanium dioxide technology for the coatings industry.

Ti-Pure DuPont has been making titanium-based white pigments for paper, coatings, plastics and specialty applications since 1931 and is one of the world's leading producers. Today, in addition to DeLisle, the company operates a mining facility in Starke, Florida and TiO2 plants in Edge Moor, Delaware; New Johnsonville, Tennessee; Kuan Yin, Taiwan and Altamira, Mexico producing about a quarter of the world's TiO2 pigments.

DuPont entered the TiO2 business in 1931 when it purchased a TiO2 patent-holding company, the Commercial Pigments Corporation, and offered a line of Ti-Pure products. When demand surged after World War II, DuPont engineers invented an alternate, more economical "chloride process."

The Asia-Pacific region has become the largest consumer of TiO2 and now comprises nearly one-third of total global demand. It is projected to be the world's largest TiO2 pigment consuming region by 2010.

In Europe, Huntsman is expanding its plant in Greatham, UK, by 50,000 tonnes/year to 150,000 tonnes/year. When completed in the second half of 2008, it will raise Huntsman's global capacity to 570,000 tonnes/year.

Meanwhile the Pigments business of Huntsman Corporation announced in January 2008 that it would increase prices of all TIOXIDE titanium dioxide pigments in Asia Pacific, Africa, the Middle East, and South America by $200 per metric ton (USD).

This increase is in addition to the previous increase announced in September 2007.

Huntsman said that while their TiO2 program is doing well, the scale, magnitude and volatility of input cost increases are at unprecedented levels and the business cannot continue to absorb the costs.

The company says it urgently needs to pass on these increases to avoid further erosion of profitability and that a Huntsman sales representative will discuss this in more detail with individual customers.

Plants are increasing as well as prices. Many producers of TiO2 are expanding their facilities to meet market demand.

## THE DEMAND

Titanium dioxide suppliers also face a lot of pressure from their customers in the paint industry.Today's customers expect more from their paint in terms of performance, coverage and appearance.To meet this demand, new grades of TiO2 are continually being designed to provide greater value to both the coatings manufacturer and consumer.

Paint products also have a wide spectrum of price points, performance levels and government regulations to comply with, which places demands on titanium dioxide pigment suppliers.

Some of these customer requirements demand TiO2 pigments with significant hiding power and gloss with very little variation in appearance.These pigments must also perform in lightly loaded, contractor-grade paints that test the limits of coverage and cost per gallon.

TiO2 producers meet this challenge with continued research and development and strict process controls.

In addition to providing several different grades of TiO2, suppliers need to follow up with technical service so their customers will get the most out their products.

Paint companies may be tempted to use fillers of various types in attempts to reduce TiO2 use and decrease their cost, but this can have a very negative impact on stain resistance, touch-up and scrub resistance performance.

## WHY TIO2

TiO2 is the most important white pigment used in the coatings, plastics and paper industries today.

The main use of titanium dioxide is as a white powder pigment due to its brightness and high refractive index. It has good opacity to products such as paints, coatings, plastics, paper, inks, fibres, food and cosmetics. Its ultraviolet (UV) light resistance helps prevent the discolouration of plastics in sunlight. Sunscreens also use TiO2. As a photocatalyst, it improves the efficiency of electrolytically splitting water into hydrogen and oxygen, and can produce electricity as nano particles. It has been applied in light-emitting diodes, liquid crystal displays and electrodes for plasma displays. When TiO2 is exposed to UV light, it is more hydrophilic and has been used for anti-fogging coatings and self-cleaning windows.

In certain atmospheres, TiO2 tends to lose oxygen and become a semiconductor. It can be an oxygen sensor as electrical resistivity of the material can be correlated to the oxygen content of the atmosphere.

Meanwhile, the major consuming industries of TiO2 are in the mature sectors of the developed world — paints and coatings applications, paper and paperboard, and plastics.TiO2 tends to follow general economic trends. Capacity utilisation rates are predicted by producers to be 90 to 95 per cent. Producers and analysts estimate global growth for TiO2 at around 2 to 3 per cent per year. ■

# Coating Thickness MEASUREMENT

By David Beamish

Coatings perform a variety of important functions including protecting and beautifying outdoor structures and manufactured goods. Accurately measuring the thickness of these coatings helps maintain product quality and control production costs.

Several types of instruments are available to measure coatings in their uncured (wet) or cured (dry) state. Proper instrument selection is crucial to obtaining accurate, meaningful results. Instrument selection is dependant upon the type and thickness range of the coating, the substrate material, the shape of the part, and the need for statistical analysis. To make this choice, one must understand the different technologies available for coating thickness measurement.

Measuring techniques are either destructive or non-destructive. Non-destructive methods include magnetic, eddy current, ultrasonic, and micrometer measurement. Destructive methods include cross-sectioning and gravimetric (mass) measurement. Methods are also available for pre-cured liquid and coating powder measurement.

Figure 1

An inspector non-destructively measures paint thickness on steel drums with an electronic magnetic instrument.

## MAGNETIC PULL-OFF

Magnetic pull-off gages, sometimes referred to as Type I gages, are rugged, simple and inexpensive. They are a good, low-cost solution in situations where quality goals require only a few readings during production or inspection.

A permanent magnet, a calibrated spring, and a graduated scale are key elements to these mechanical gages. The attraction between the magnet and magnetic steel decreases as the coating thickness separating the two increases. The thicker the coating the easier it becomes to pull the magnet away. Coating thickness is determined by measuring this pull-off force.

Pencil-type models use a magnet mounted to a helical spring that works by pulling the gage perpendicularly away from the coated surface until the probe releases. Thickness is taken to be the furthest point the gage's indicator moved down the scale before snapping back upon release. Typical accuracy is ±10 per cent.

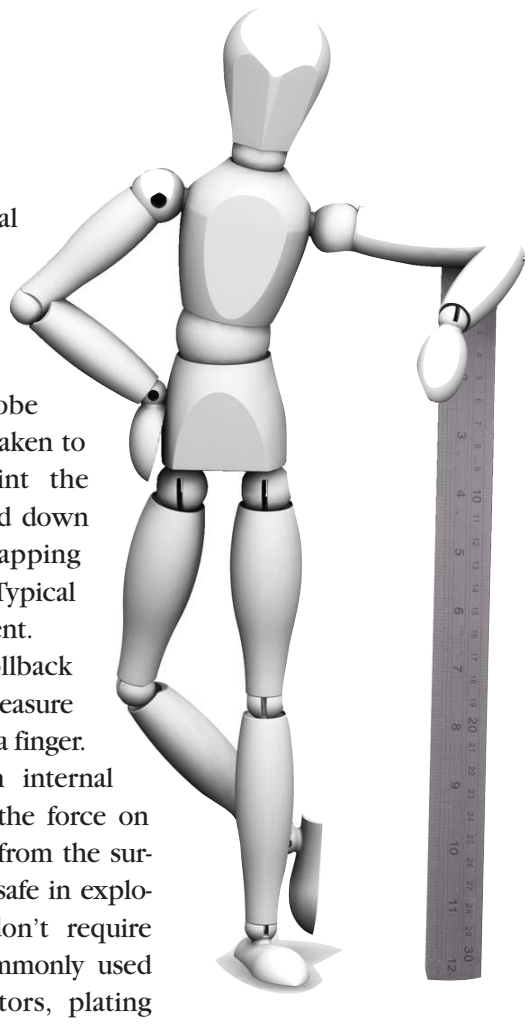
More common rollback dial models (Fig. 2) measure by rotating a dial with a finger. This action turns an internal spring and increases the force on the magnet to pull it from the surface. These gages are safe in explosive environments, don't require batteries, and are commonly used by painting contractors, plating shops, and small powder coating operations. Typical accuracy is ±5 per cent.

## MAGNETIC AND ELECTROMAGNETIC INDUCTION

Electronic instruments are the most popular type of magnetic gage used in the steel coatings industry. Sometimes referred to as Type II gages, they use one of two principles of operation – magnetic induction or electromagnetic induction. Both measure the change in magnetic flux density at the surface of a magnetic probe as it nears a steel surface. The magnitude of the flux density at the probe surface is directly related to the distance from the steel substrate. By measuring flux density the coating thickness can be determined.

Magnetic induction instruments use a permanent magnet and a Hall-effect generator or magneto-resistor to sense the magnetic flux density at a pole of this magnet. Electromagnetic induction instruments use a soft, ferromagnetic rod wound with a coil of fine wire to produce an alternating magnetic field. A second coil of wire detects changes in magnetic flux.

Electronic magnetic gages (Fig. 3) come in different shapes and sizes with a selection of optional features. Different probes are available; each optimized for specific shapes and thickness ranges.



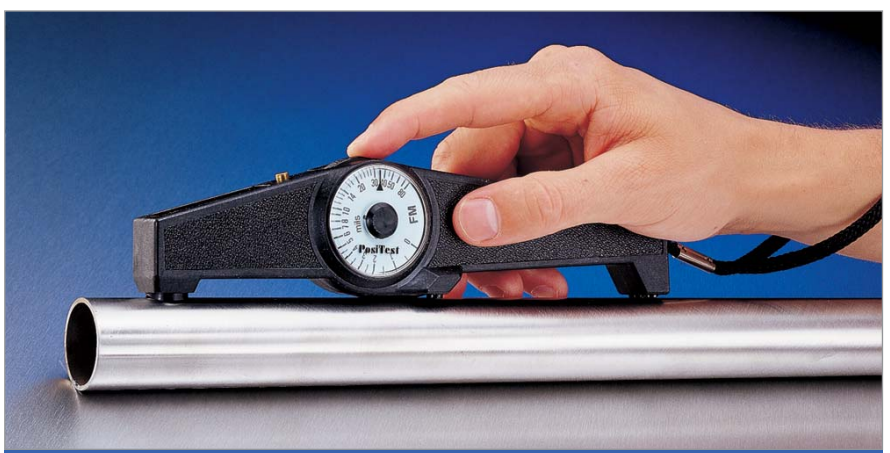



Figure 2

A rollback dial-type magnetic coating thickness gage.


**Figure 3**

Electronic coating thickness gages for metals.

Measurement is fast and readings are easy-to-read on a digital liquid crystal display (LCD). Smart user-interfaces make operation simple with optional features such as measurement averaging, analysis of reading trends, printouts for permanent record, and user-selectable languages and units of measurement. Typical accuracies are between ±1 per cent and ±3 per cent.

## EDDY CURRENT GAGES

Eddy current coating thickness gages (Fig.3) often look and operate just like their magnetic cousins. They employ an eddy current technique to non-destructively measure the thickness of non-conductive coatings on non-ferrous metal substrates such as paint on aluminum.

Similar to the electromagnetic induction principle, a coil of fine wire is used. This time a higher-frequency alternating current (above 1 MHz) is used to set up an alternating magnetic field at the surface of the instrument's probe. When the probe is brought near a conductive surface, the alternating magnetic field sets up eddy currents on the surface. The substrate characteristics and the distance of the probe from the substrate (the coating thickness) affect the magnitude of the eddy currents. The eddy currents create their own opposing electromagnetic field that is sensed by the exciting coil or by a second, adjacent coil.

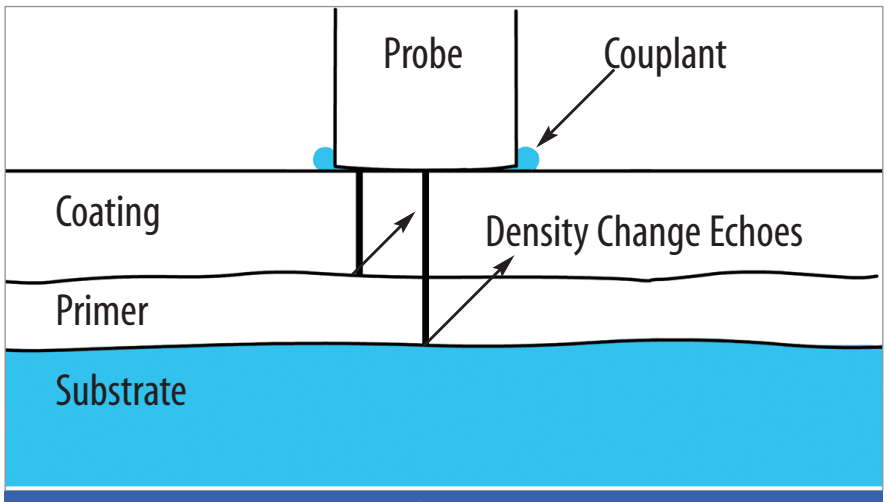



**Figure 4**

Ultrasonic vibrations reflect off coating interfaces

Some instruments incorporate both magnetic and eddy current principles into one unit. Most simplify the task of measuring by switching automatically from one principle of operation to the other depending upon the substrate. These combination units are popular with painters and powder coaters.

The manufacturer's instructions should be carefully followed for most accurate results. Standard test methods for magnetic and eddy-current instruments are available in ASTM D7091, ISO 2808 and SSPC-PA2.

## ULTRASONIC GAGES

Instruments discussed to this point only measure coatings over metals. Non-metal applications such as coatings over plastic, wood and concrete require an ultrasonic pulse-echo technique.

Ultrasonic testing works by sending an ultrasonic vibration into a coating using a probe (transducer) with the assistance of a couplant applied to the surface.

The vibration travels through the coating until it encounters a material with different mechanical properties—typically the substrate but perhaps a different coating layer. The vibration, partially reflected at this interface, travels back to the transducer where it is converted into a high frequency electrical signal. The echo waveform is digitized and analyzed to determine a coating thickness value that is based upon the time of travel for the pulse. Meanwhile, a portion of the transmitted vibration continues to travel beyond that interface and experiences further reflections at any material interfaces it encounters Because a potentially large number of echoes could occur, the gage is designed to select the maximum or "loudest" echo from which to calculate a thickness measurement. Instruments that measure individual layers in a multi-layer application also favor the loudest echoes. The user simply enters the number of layers to measure, say three, and the gage measures the three loudest echoes. The gage ignores softer echoes from coating imperfections and substrate layers.

Ultrasonic instruments (Fig.5) measure the transit time of an ultrasonic pulse. Therefore they must be calibrated for the "speed of sound" in that particular material. From a practical standpoint, sound velocity values do not vary greatly among paints and therefore these gages usually require little or no adjustment to their factory calibration settings.

Typical accuracy is ±3 per cent. Standard methods for the application and performance of this test are available in ASTM D6132 and ISO 2808.

## THICKNESS STANDARDS

Dry-film coating thickness gages are calibrated to known thickness standards. These standards are typically smooth, metal substrates with an epoxy coating of known thickness (Fig.6). There are many sources of thickness standards but it is best to ensure they are traceable to a national measurement institute such as NIST (National Institute of Standards & Technology).

Highly accurate coating thickness standards are used to calibrate gages as part of the manufacturing process. The same standards are available for purchase for use as calibration standards in a calibration lab or as check standards in the field or on the factory floor. A regular check against these standards verifies the gage is operating properly. When readings do not meet the accuracy specification of the gage, the gage must be adjusted or repaired.

## HEIGHT MEASUREMENT

Micrometers are sometimes used to check coating thickness. They have the advantage of measuring any coating/substrate combination but the disadvantage of requiring access to the bare substrate. The requirement to touch both the surface of the coating and the underside of the substrate can be limiting and they are often not sensitive enough to measure thin coatings.

Two measurements must be taken: one with the coating in place

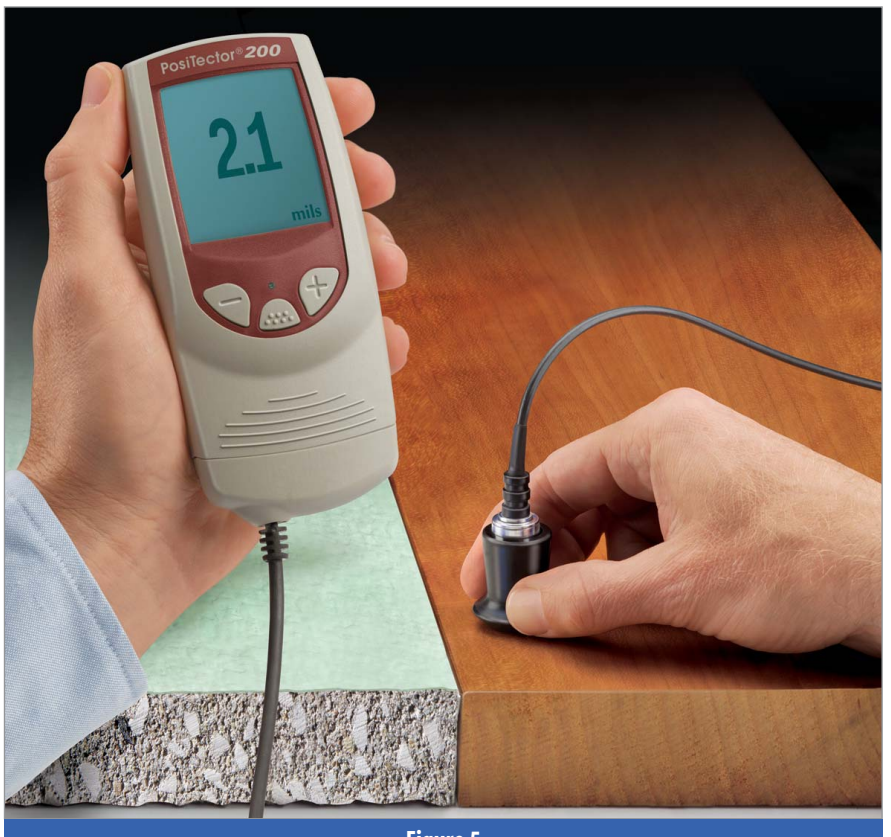



**Figure 5**

An ultrasonic coating thickness gage.


Figure 6

Coating thickness standards.

and the other without. The difference between the two readings, the height variation, is taken to be the coating thickness. On rough surfaces, micrometers measure coating thickness above the highest peaks.

Similarly, dial gages with a spring-loaded stylus can be affixed to a test stand. The part to be measured is placed under the instrument and film thickness is taken to be the difference between the reading obtained for the total thickness and that obtained for the substrate thickness only.

## CROSS-SECTIONING

Coating thickness can be measured destructively by cutting the coated part and viewing the cut microscopically. This technique commonly uses a scaled microscope to view

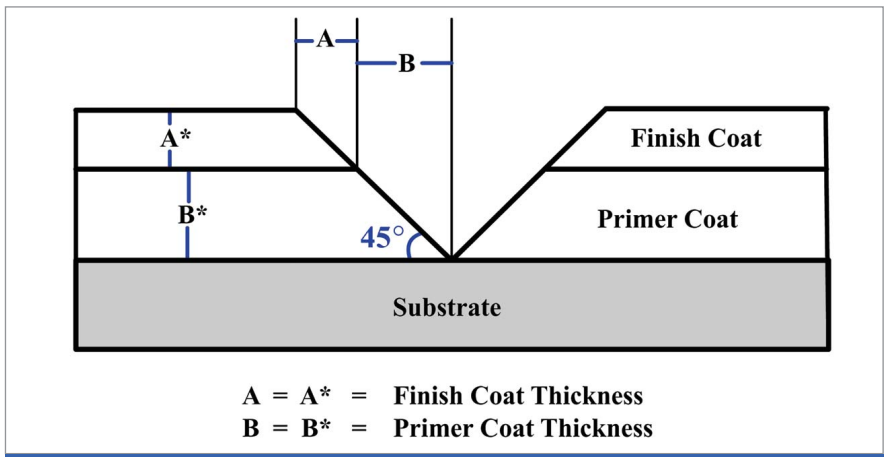



Figure 7

Cross-Sectional Coating Thickness Measurement

a geometric incision through the dry-film coating. A special cutting tool is used to make a small, precise V-groove through the coating and into the substrate (Fig.7). Instruments are available that come complete with cutting tips and illuminated scaled magnifier.

While the principles of this destructive method are easy to understand, there are opportunities for measuring error. It takes skill to prepare the sample and interpret the results. Adjusting the measurement reticule to a jagged or indistinct interface may create inaccuracies, particularly between different operators. This method is used when inexpensive, non-destructive methods are not possible, in some multiple layer applications, or as a way of confirming non-destructive results. ASTM D4138 outlines a standard method for this measurement method.

## GRAVIMETRIC

By measuring the mass and area of the coating, thickness over the entire coated surface area can be determined. The simplest method is to weigh the part before and after coating. Once the mass and area have been determined, the thickness is calculated using the following equation:

$$T = \frac{m \times 10}{A \times d}$$

Where T is the thickness in microns, m is the mass of the coating in milligrams, A is the area tested in square centimeters, and d is the density in grams per cubic centimeter.

It is difficult to relate the mass of the coating to thickness when the substrate is rough or the coating uneven. Laboratories are best equipped to handle this time-consuming and often destructive method.

## WET-FILM MEASUREMENT

Wet-film thickness gages help determine how much material to apply wet to achieve a specified dry-film thickness provided that the percent of solids by volume is known. They measure all types of wet organic coatings such as paint, varnish and lacquer on flat or curved smooth surfaces.

**Without thinner:**

$$WFT = \frac{\text{desired dry-film thickness}}{\%\ \text{of solids by volume}}$$

**With thinner:**

$$WFT = \frac{\text{desired dry-film thickness} \ / \ \%\ \text{of solids by volume}}{100\% \ + \ \%\ \text{of thinner added}}$$

Measuring wet film thickness during application identifies the need for immediate correction and adjustment by the applicator. Correction of the film after it has dried or chemically cured requires costly extra labor time, may lead to contamination of the film, and may introduce problems of adhesion and integrity of the coating system.

The equations for determining the correct wet-film thickness (WFT), both with and without thinner, are as follows:

Wet coatings are most often measured with a wet film comb or wheel. The wet-film comb is a flat aluminum, plastic or stainless steel plate with calibrated notches on the edge of each face. The gage is placed squarely and firmly onto the surface to be measured immediately after coating application and then removed. The wet-film thickness lies between the highest coated notch and the next uncoated notch. Notched gage measurements are neither accurate nor sensitive, but they are useful in determining approximate wet-film thickness of coatings on articles where size and shape prohibit the use of more precise methods such as described in ASTM D1212.

The gage should be used on smooth surfaces, free from irregularities and should be used along the length, not the width, of curved surfaces. Using a wet-film gage on quick-drying coatings will yield inaccurate measurements. ASTM D4414 outlines a standard practice for measurement of wet-film thickness by notch gages.

## DRY POWDER MEASUREMENT

Powder coatings can be measured prior to curing with a simple hand-held comb, a modified magnetic gage, or an ultrasonic gage. A recently published ASTM D7378 practice describes these methods of coating powder measurement.

The inexpensive powder film comb (Fig.8) works much the same way as a wet film gage. The comb is dragged through the uncured powder and the thickness is considered to be a range value between the highest numbered tooth that made a mark and has powder clinging to it, and the next highest tooth that left no mark and has no powder clinging to it.

A special magnetic probe is available to achieve the same objective. Three pins integrated into the probe penetrate the coating powder down to the substrate. The probe tip touches slightly onto a pressure-reducing foil that is bent onto the powder coating.

Because both these gages produce a height measurement of the uncured coating powder, a reduction factor must be used to predict the cured powder thickness for each particular powder. This reduction factor is obtained by measuring the cured powder thickness at the same location where the uncured powder thickness measurement was taken. Marks left by both these gages may affect the characteristics of the cured film.

Finally, an ultrasonic device can be used non-destructively on uncured powder on smooth metallic surfaces to predict the thickness of the cured film. The user first makes a calibration adjustment to the instrument by measuring the cured powder thickness at the same location where the uncured powder thickness measurement was taken and aligns the gage readings with the cured coating readings. The probe is positioned a short distance from the surface to be measured and a reading is displayed on the LCD of the device.

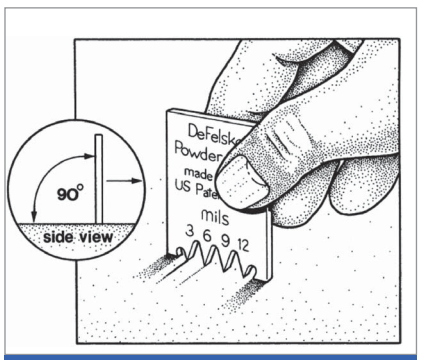



Figure 8

A powder coating comb.

## SUMMARY

Accurately determining the thickness of coatings helps control costs and quality. Measurement of film thickness should therefore be a routine event for all coaters. A variety of recognized methods can be used and the selection decision should be based upon an understanding of the different technologies available. ■

*David Beamish is general manager of DeFelsko Corporation, a New York-based manufacturer of hand-held coating test instruments. He has a degree in civil engineering and has more than 20 years' experience in the design, manufacture and marketing of these instruments.*

# Wastewater
## (and its burden) Have No Boundaries

By John Seldon

### WATER FACT: AVAILABILITY

Saltwater oceans hold 97 per cent of surface water, glaciers and polar ice caps 2.4 per cent, and other land surface water such as rivers and lakes 0.6 per cent.

History has a habit of coming back and biting you on the butt. Thirteen years ago this writer made his first and only trip – and to date, excepting the United States – out of Canada. Flying non-stop from Vancouver I remember seeing more Pacific Ocean than I cared to believe we were capable of covering before landing on Chinese soil. In time, the group I accompanied arrived at the Tienjin Economic Development Zone (TEDA) and set to work right away.

I was 46 at the time, a recent graduate of a Master's program in planning from the University of Waterloo and working for the Wastewater Technology Centre out of Burlington, Ontario. Previously I had worked for 20 years in the wastewater treatment field. I was sent as an "expert" in waste management and to my best recollection that involved reviewing a waste management master plan, interviewing individuals responsible for water and wastewater treatment at newly constructed internationally owned production sites – the best remembered one being Coca-Cola (I never met a can of Coca Cola that I didn't like). Lunch break found me eating some of the best food ever – usually in a "so-called" working man's restaurant, every noon hour with my colleagues. Heaven half a world away.

At the time there was much being said about a level playing field when it came to manufactured goods. If a western firm was to locate a branch plant in China it was expected that the environmental controls required in its base country – say, Canada – would have to be met in China as well. This was a combination of altruism – environmental stewardship is as much a "right" of Chinese citizens as citizens in any other place in the world – and economic fairness. If we in Canada have to meet high environmental standards and incur the costs for the same, so should branch plants in China, thereby reducing environmental production costs inequity. It was an extraordinary opportunity for me, which I often remember as a scene looking east in the very early morning as the sun was rising over Bohai Bay, a brilliant morning star hanging in the sky, factory workers cycling in to work, walking past partially completed buildings under construction and tasting the particulate in the air from industrial air emissions. And always a wind from the west.

In the last half of 2007 who didn't hear complaints about the quality of some Chinese produced products being sold in North America? In particular, the use of lead paint on manufactured goods received a lot of attention. Those of us who were raised with the notion that taking lead out of paint products was old hat – and living on stories of how babies ingesting lead-based paints from their home environment had spurred on this change – were amazed that this could ever be a problem again. But this writer also gained a granddaughter in 2007 and, 5 and a half months old at Christmas, she had learned to put everything in sight into her mouth. Lead based paint had no place on any toy she received.

Thirteen years ago I helped on a project seeking to ensure that then current wastewater management practices were being used or considered for new manufacturing and domestic sites operating in China. More than a decade later, I am making certain products coming into contact with my granddaughter are not covered in lead based paint from the same country.

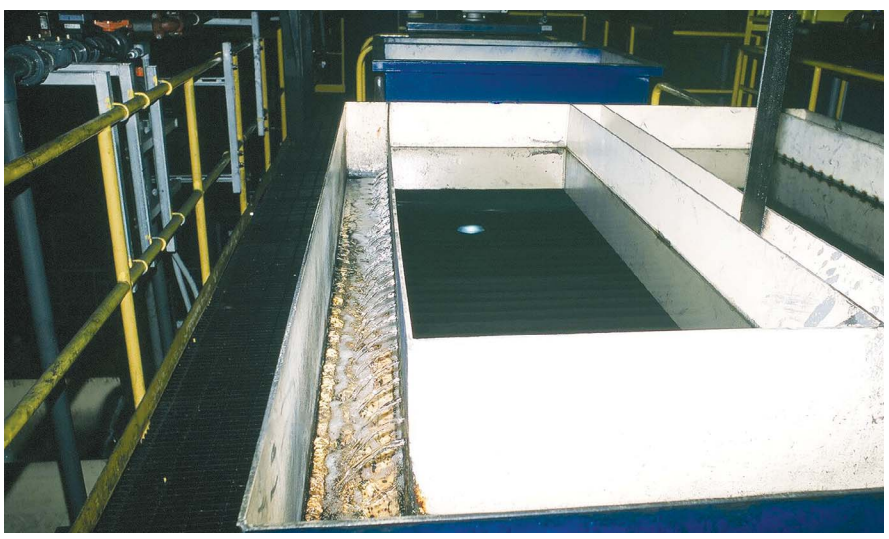
However, the above examples of work and product manufacture are only modest and old examples of what is truly changed, or not. And that is, the world community is looking to becoming sustainable. Global economic fair play morphs into sustaining human life on the planet. Some may claim that even this is old hat. But I suggest there is a growing awareness, now more than ever reflected in the board rooms of private sector firms and regulatory agencies that is truly bringing this to the foreground.

As recently as December 2007, the Ontario Planning Journal's lead article was "Healthy Communities, Sustainable Communities - A Call to Action". (In the interest of full disclosure, this writer is a Registered Professional Planner (RPP) and a member of the Ontario Professional Planners Institute (OPPI) and the Canadian Institute of Planners (CIP). In drafting its November 8t, 2007 report of the same title, the OPPI used the 1987 Bruntland Report definition of a sustainable community which states in part:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In essence sustainable development is a process of change in which exploitation of resources, the direction of investments, the orientation of technological developments and institutional change are all in harmony and enhance current and future potential to meet human needs and aspirations."

This higher profile was clearly demonstrated with a full page colour advertisement in the New York Times on Sunday September 9, 2007 carrying a title "Water H2O = Life". This was an advertisement for a show at New York City's American Museum of Natural History, which began on November 3, 2007. Contributors for the show addressing "…Earth's most precious life-giving resource." came from the United States, Brazil, Australia, Canada and Singapore. The Johns Hopkins Center for a Livable Future also contributed. Sustainability is becoming main-stream and water quality is front and centre.

Further, we are all in this together. A manufacturer's environmental fingerprint is measured by its particular wastewater discharge characteristics for any number of contam-



inants against a community sewer-use discharge by-law.

The discharge of contaminants may have at least two effects once being received at a wastewater treatment plant. The first is that the combined influent concentration of a contaminant may have a deleterious (inhibitory) effect on biological wastewater treatment processes (i.e. activated sludge treatment, anaerobic digestion, nitrification) and secondly the accumulation of unacceptable levels of contaminants in sludge collected by the wastewater plant may make the sludge unacceptable for use on agricultural land as a soil enhancer. These two consequences drive sewer use bylaw limits to ever lower concentrations as acceptable levels are "researched" to ever lower limits.

No one wants to allow a level of contaminant in sludge that may harm the environment or accumulate in food products when grown on land from receiving these biosolids and eventually compromising foods human consume, putting humans at risk.

The regulatory effects are two-fold: Firstly, ever decreasing levels of contaminants are allowed in both wastewater effluent discharges and in biosolids themselves. Secondly, the use of biosolids is more and more being called into question and its final disposal is moving to incineration with ash deposit in a secure landfill from agricultural disposal, losing organics and nutrients which might have been recycled lost through agricultural application.

The Canadian Council of Ministers of the Environment have been working toward establishing national standards for a sewer use bylaw. The (then) Canadian Association of Metal Finishers (CAMF) submitted a memorandum on these proposed standards in February 2007, arguing its case for where these standards should be set. This technical document provides many examples of limits proposed or used, in particular those for four Toronto, ON, plants. For example, the influent level for chrome at the Ashbridges Bay plant is set at 0.021 mg/l and effluent at 0.0069 mg/l – a 67 per cent removal rate. Sludge levels for chrome are set at 104.4 mg/kg (ie. .000104 kg of chrome in 1 kilogram of dry sludge (dry solids measure).

Do you think this is all very esoteric? It doesn't have a real world effect on you? It does and it shows up in the most basic ways. The Lake Erie Beacon is a community newspaper out of Port Stanley, ON. In its December 21, 2007 edition it had a number of definitions for types of turkey. A turkey labeled "Organic" (and who isn't eating organic of one sort or another these days?) was identified as "… turkeys fed on organic feed grains or grass fed without the use of genetic engineering methods, ionizing radiation or sewage sludge for fertilizing (italics added by author). The birds cannot be given antibiotics or hormones."

Confounding the efforts for lower limits is the current call for upgrading infrastructure in our communities. Infrastructure in general was addressed in the Ontario planning journal sustainable article noted earlier where it states "Old and new infrastructure needs to be reorganized, rebuilt, replaced or dismantled to support sustainable urban form and transportation networks if our current public health challenges are to be addressed."

In short, as a manufacturer, water user, pollution control operator, you are your brother's keeper.

What is more, the level of contamination of solids or water is ever more scrutinized and more often than not existing levels of contaminant discharge are being reduced. This, in my opinion is driven by the philosophical view that long term exposure to very low concentrations of any number of contaminants – either alone or in combination with each other – can cause health problems in human beings. It is moving to the point of no tolerance is acceptable, no level other than "zero" tolerated.

Economic pressure, environmental concerns, human health drive the limits further and further downward, measured and rationalized scientifically, set and monitored by the civil service and implemented by politicians. You may disagree with any of these aspects – say how well the science really is in evaluating the effects of any one contaminant at any particular level – but I believe the trend will continue for some time to come. Costs? Well, for those of us who have worked with primary, secondary and tertiary wastewater systems, and primarily concerned with meeting limits for basics like biochemical oxygen demand (BOD5), suspended solids (SS) and phosphorus, we know that the cost per unit contaminant increases rapidly with the level of treatment sophistication. The CAMF memo referenced earlier suggests costing may be viewed by an "80/20" rule:

"Achieve 80 per cent reductions by spending 20 per cent of total possible budget and achieve the remaining 20 per cent reductions by spending 80 per cent of total possible budget."

In my first article for Canadian Finishing & Coatings Manufacturing (CFCM, September 2007) I provided some hints re achieving good operations – the first being a qualified, wastewater dedicated operator. This current article reflects a much broader perspective of what is happening in communities around the world as "sustainability" becomes the "Holy Grail" of community life.

As we move from policy to function can you answer that the person sampling your wastewater stream, operating your wastewater system, is an individual trained to ensure that your firm's fingerprint on this world is in compliance with the policies of your community as it moves toward sustainability? Failure to meet environmental standards becomes grist for the international-ly-reaching Internet which will churn out information – right or wrong, in milliseconds.

So who is doing your sampling? Who is doing your analyses? When did you last audit your own efforts in sustainability?

What is your environmental footprint – for everything from carbon to chrome? Does a trend analysis of your historical records support your footprint claim? You don't have historical data? You lack a trend analysis? You have no policy in place for purchasing from green suppliers? You don't have a green footprint declaration to include with your response to a Request for Proposal? If you don't, count on your competitor to have all these things in place. Soon. ■

*John Seldon is president of Temporary Operations & Maintenance Inc., Port Burwell, ON, and has 35 years experience in the industry.*

# SELECTING

## the Appropriate Plating Thickness Measurement Instrument

By Paul Lomax

Market realities in the plating field require stringent process control of plated parts. In particular, thickness measurement is a critical component of any plating process control program. Several factors will help yield the most effective results involving plating thickness measurement. These factors include selecting the most appropriate instrument for the measurement task and utilizing advancements in technology to document the results of the program.

Measurement methods for plating and anodize thickness include magnetic induction, eddy current, phase-sensitive eddy current, coulometric, beta backscatter, and X-ray fluorescence. The substrate, part geometry, type of plating, expected thickness, and whether the task requires the measurement of a single or multi-layer plating all determine the test method most suitable for the application.

Figure 1. (Various Plated Parts) provides a sample of a few of the thousands of common plating applications. It also demonstrates the challenge that platers and incoming inspectors face when trying to measure parts with various geometrical shapes. As previously mentioned, two of the most common test methods include Magnetic induction and Eddy Current. Magnetic Induction instruments will measure non-magnetic coatings on ferromagnetic substrates. Examples include zinc, chromium, copper, tin, paint, and powder coating over steel or iron. Eddy Current instruments will measure electrically non-conductive coatings on non-ferrous metals. Examples include anodized aluminum and paint or powder coating over aluminum, brass, and zinc.

Small parts like those pictured in Figure 1 cause a measurement challenge. Measurements made too near an edge or inside corner may not be valid unless the instrument has been normalized and adjusted for that particular edge. Having an instrument that is capable of accessing an edge or inside area with interchangeable probes like those pictured in Figure 2 (Fischer Coating Thickness Probes) will help with the part geometry challenge. The ability to store the normalization and adjustment in application settings and the ability to name the task on the display of the unit will also save the end user much time and confusion. Additionally, features such as a "V" groove adapter for the measurement probe and a measurement stand like that pictured in Figure 3 (V12 Measurement Stand, DELTASCOPE MP30E and Printer) will help position the probe on the part to be measured with repeatable results.

Some plating applications such as zinc over steel on small parts, Figure 4, (PHASCOPE PMP10), nickel over steel, copper thickness measurement inside PC board boreholes and surface copper thickness measurement on PC boards are better suited for the phase-sensitive eddy current method. By using the phase position of the probe signal instead of the amplitude for the coating thickness computation, the interfering influences of the part shape and of the probe lift off are significantly reduced. Edge effect, a common challenge for plating thickness applications, therefore, is less of an issue using the phase-sensitive eddy current method than other methods such as magnetic induction. Those measuring fasteners such as nuts, bolts, nails, and screws will especially benefit by utilizing the phase-sensitive eddy current method.

As demands for documentation increase, features on hand-held devices such as the DUALSCOPE FMP100 Figure 5A, 5B, 5C. (DUALSCOPE FMP100) make it easier for end users to create reports. Bright color LC display and touch screen, familiar Windows CE operation system, and drag and drop print form configuration including reports in PDF format allow for customized reports. Production processes can be evaluated quickly and differences between various shipments can be identified during incoming inspection.

The Coulometric coating thickness method is particularly useful for measuring duplex nickel coatings in automotive applications. The method involves determining the weight of an area of a metallic coating through localized anodic stripping of the coating. The calculating thickness based on mass per unit area. Thickness measurement is made with an electrolysis cell,

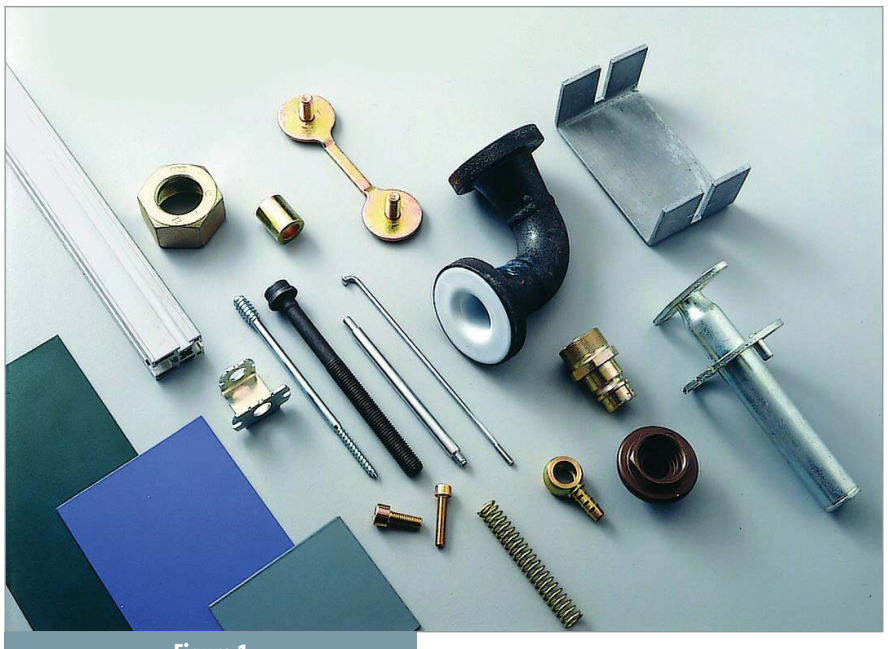


Figure 1

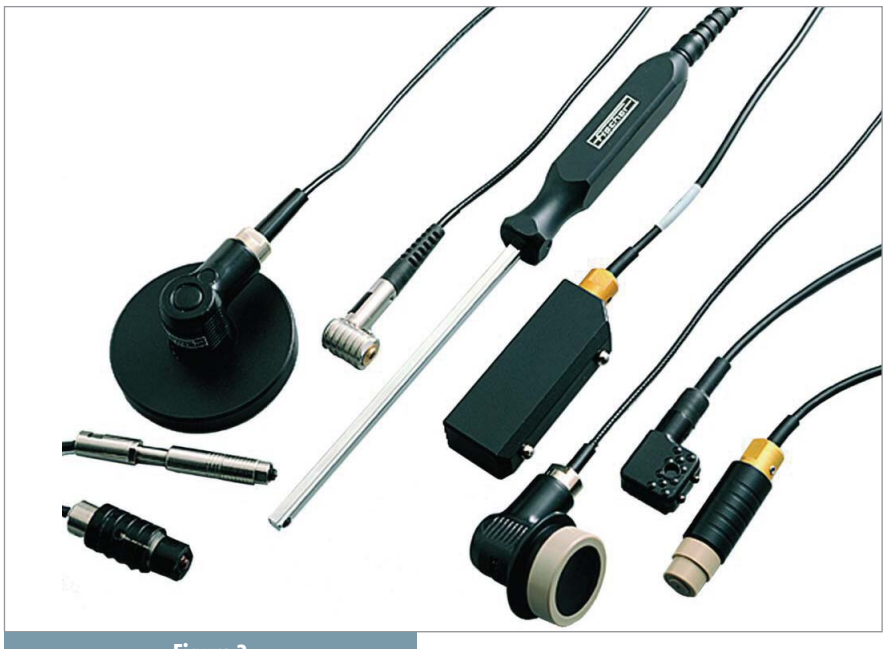


Figure 2

Figure 3

which is filled with an electrolyte specifically selected for stripping the particular coating. Constant current runs through the test cell to deplate the coating material which serves as the anode. With current density and surface area being constant, coating thickness is proportional to the time it takes to strip the coating. Figure 6 (COULOSCOPE CMS and CMS STEP)

The Beta Backscatter Method can be used to measure paint, oil, lubricating films, plastic enamel, ceramic and phosphate coatings on metals and some non-metals. It can also be used to measure metal coatings on other metals and non-metals, including some coatings too thick for the X-ray test method. Common applications involve the PC-board market, Electronics industry, Automotive industry, and Consumer products industry to name a few. The BETASCOPE module can be used to measure all coatings where the atominc numbers of coating and substrate differ sufficiently (a minimum of 20 per cent). The measurement range of the beta backscatter method is generally determined by the energy of the isotope and the density of the coating material. End users should consult with manufacturers of beta backscatter instrumentation to select suitable isotopes for the measurement ranges and the coating/substrate combinations.

X-ray fluorescence (XRF) is a versatile non-contact, coating thickness measurement method for very thin single or multi-layer alloy coatings. It is also the screening tool of choice for WEEE/RoHS applications. The major advantage of X-ray fluorescence over other WEEE/RoHS test methods is that it is non-destructive. Other advantages include the following:

Very little sample preparation

Quick and reliable readings

No lengthy operator training of the test method

The radiation of an X-ray tube excites the sample to emit X-ray fluorescence radiation, which is characteristic for each element. The detector registers the energy spectrum. The elements contained in the sample can be identified through the characteristic energies of the peaks of the spectrum. The concentrations of the elements, or the coating thicknesses, respectively are determined by the intensity of their radiation. A proportional counter detector or a semiconductor detector delivers the measuring signal. A proportional counter detector yields high count rates with a large accession window. For quite a few plating thickness and material analysis applications a proportional counter detector is appropriate. For WEEE/RoHS , very thin complex coatings, and material analysis applications, a semiconductor detector could be the better solution.

Another factor to consider when

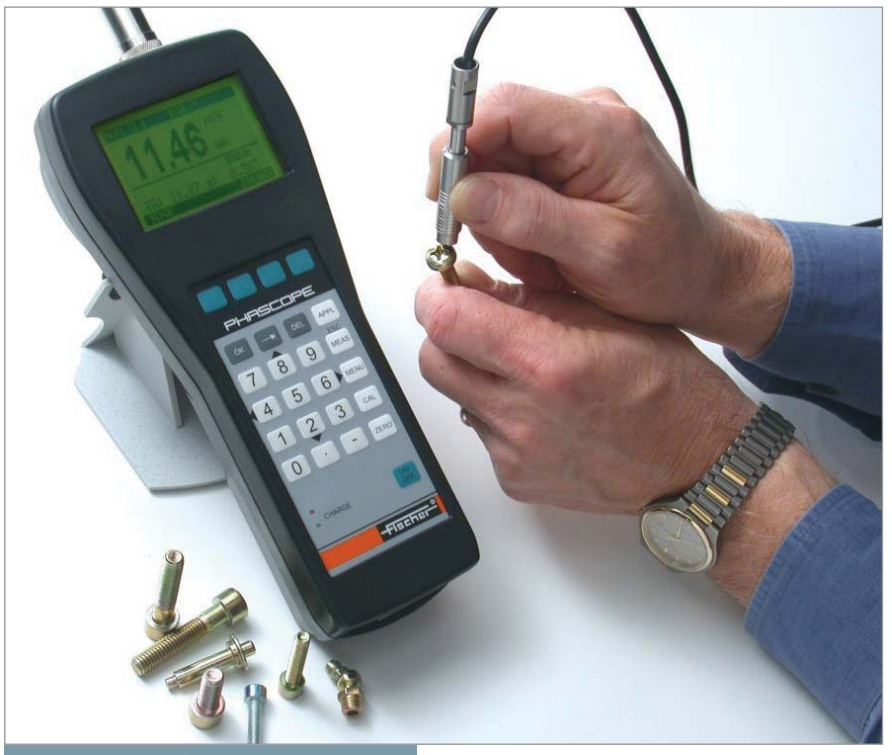



Figure 4

selecting an X-ray fluorescence instrument is whether or not the instrument can physically measure the sample. Whether it can measure can be determined by the spot size of the measurement as well as dimension of the part. If a spot size is too large, a mean value is formed over a large area resulting in the case of military and aerospace applications in a part passing inspection when in reality it is non-compliant. A collimator determines spot size of the measurement area, therefore, having an instrument that offers multiple collimator settings is advantageous.

Plated parts can be placed in the measurement chamber of an X-ray fluorescence instrument. Some come with programmable stages while others offer manual positioning of the parts. Auto focus in addition to visual focus is an added benefit of some XRF instruments.

Software capabilities as well as the user friendliness of the software should be a consideration when selecting an X-ray fluorescence instrument. Software that offers an automatic product search capability is ideal for incoming inspection departments, allowing for a wide variety of samples to be tested without prior knowledge of the makeup of those samples. Single and multi-layer plating thickness measurement continues to be an important part of process control. Multiple test methods are available in addition to multiple product choices within each category. The end user should be aware of the capabilities of various instruments and follow the guidelines set forth in the manufacturers' documentations. ■


Figure 5A


Figure 5C

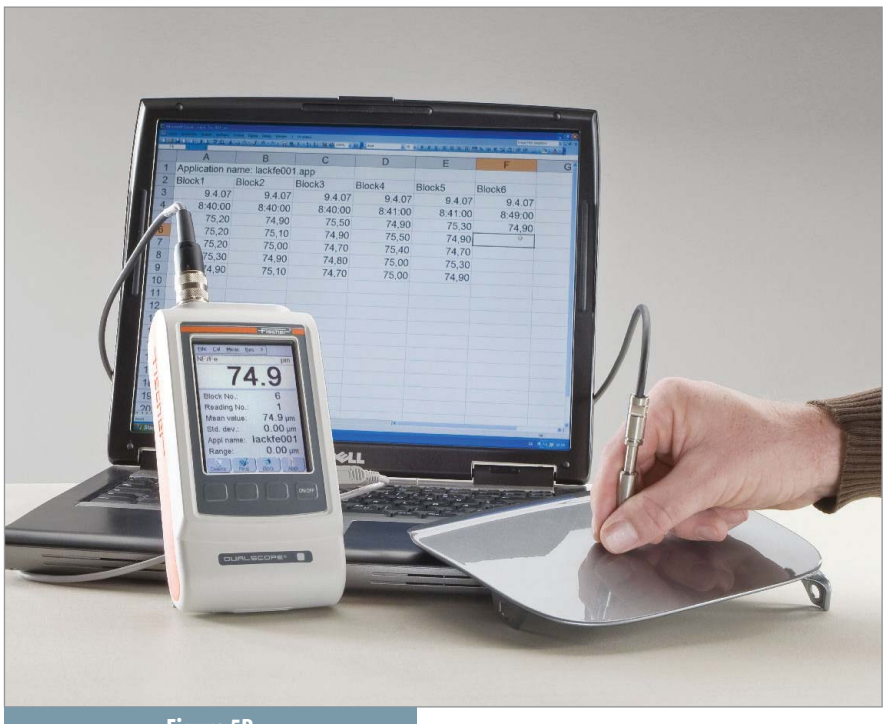


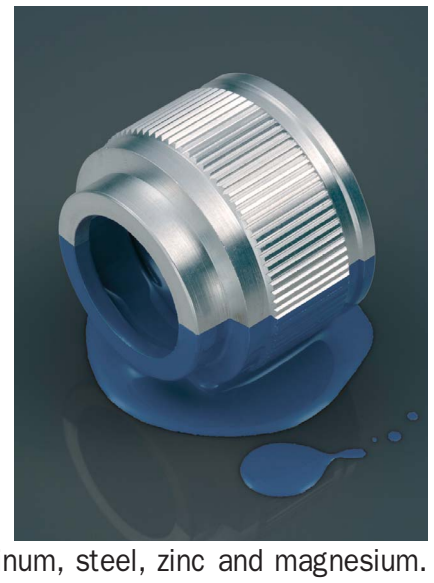

Figure 5B

*Paul Lomax is Marketing Director for Fischer Technology located in Windsor CT. Fischer Technology offers a comprehensive line of coating thickness, material testing, and material analsyis instrumentation.*
*For further information visit www.fischer-technology.com, call 860-683-0781, or e-mail info@fischer-technology.com*

# NEW PRODUCTS & TECHNOLOGIES

## Atotech New Elv-Compliant Pretreatment Products

Atotech Canada Ltd. has recently introduced the Interlox range of new ELV-compliant pretreatment passivates to the Canadian market. The Interlox product line consists of three distinct liquid coatings that offer superior corrosion resistance and promote better bonding of both paint and powder coatings. Interlox films appear clear to iridescent and all three products can be applied by spraying or immersion methods. Two of the products are Cr-free and one is Cr VI free. Interlox 338 is a Cr III passivate that provides superior performance on aluminum substrates. Interlox 5704 offers a slightly heavier coating applied at a higher temperature and Interlox 5705 provides an even heavier coating that is suitable for use on a range of substrates including aluminum, steel, zinc and magnesium. All Interlox passivates allow the flow of electricity making them suitable for use on electrical connectors and other applications that require a current carrying capability. Interlox pretreatments meet the electrical conductivity and corrosion-resistance specifications of MIL C-5541E and MIL DTL-81706 Class 3. All three coatings are compliant with ELV, RoHS and WEEE environmental requirements. For more information on Interlox pretreatments, contact Atotech Canada Ltd.



**www.atotechcanada.com**

## DuPont Colorsplash

DuPont CoatingSolutions has entered into an agreement with Prismatic Powders, a division of NIC Industries, Inc. to market and sell a unique segment of their powder coatings under the brand DuPont Colorsplash by Prismatic. The line consists of vibrant colours, select metallic special effect finishes, textures and two coat colours that add zest to automotive wheels and bicycle and motorcycle finishes.

According to DuPont, the alliance gives Prismatic Powder broader market reach while enabling DuPont to add a unique product offering in order to benefit customers.

Prismatic Powders has specialized in the unique color niche of the powder coating market for more than 23 years, and DuPont is proud to offer these coatings to the marketplace.

"This strategic agreement provides a sales and distribution channel for Prismatic and bolsters product offering for DuPont," said Prismatic Powders General Manager Brian Hall.

Trena Benson, marketing manager, DuPont CoatingSolutions said, "We are creating a competitive advantage for both companies and improving service and selection for our customers."

**www.dupont.com**

## New Laminating Resins

DSM NeoResins+ launches NeoRez P-900 series; the next generation of laminating resins for Flexible Packaging. The products are based on novel routes in polyester chemistry and when cross-linked give consistent and exceptional bond strengths. They are free of aromatics isocyanates and comply with FDA 175 300, making them ideally suited to flexible food packaging.

DSM NeoResins+ is a leading, committed, global supplier of innovative specialty resins, and is headquartered in the Netherlands, with locations in Europe, Asia, the Americas, Africa and Australia.

**www.neoresins.com**

## Henkel Literature Profiles Next Generation Visible Light Cure Adhesives

New literature from Henkel Corporation profiles the next generation of Loctite Indigo Visible Light Cure technology: innovative adhesives and equipment designed to deliver safe, efficient, and immediate cure using light in the visible spectrum.

The literature overviews the complete line of Loctite Indigo Visible Light Cure adhesives and dispensing/curing equipment. The four-page brochure provides detailed product information on low viscosity Loctite Indigo 3554, medium viscosity Loctite Indigo 3555 and high viscosity Loctite Indigo 3556 visible light cure adhesives, and profiles the complete line of Loctite Indigo point and flood-style visible light cure systems. All Loctite Indigo products highlighted in the literature are appropriate for a wide range of industrial and medical assembly applications.


The literature explains that Loctite Indigo adhesive products require no venting or specialized protective equipment to ensure worker safety. The adhesives cure through UV blocking clear and select colored substrates, including translucent variations of blue, purple, gray, white and green. All adhesives in the Loctite Indigo Visible Light Cure line offer excellent adhesion to various plastics including polycarbonate, PVC, and ABS; and are ISO 10993 biocompatible.

**www.henkel.com**

## Redesigned PosiTector DPM - Dew Point Meter

The redesigned PosiTector Dew Point Meter from DeFelsko Corporation measures and records climatic parameters including relative humidity, air temperature, surface temperature, dew point temperature and the difference between surface and dew point temperatures. New features include larger, easy-to-read backlit display; Smart Trend Indicators to identify rising, falling or stable readings; a unique Graph Mode to chart all five parameters for quick analysis; and increased memory capacity to store up to 2500 datasets in 100 batches. The PosiTector DPM easily converts to accept various optional K-type probes including magnetic and hand-held surface temperature probes. The optional Magnetic Surface Temperature Kit allows the instrument and a surface temperature probe to be conveniently attached onto steel structures – for hands free recording. Ideal for unattended operation to record climatic trends.

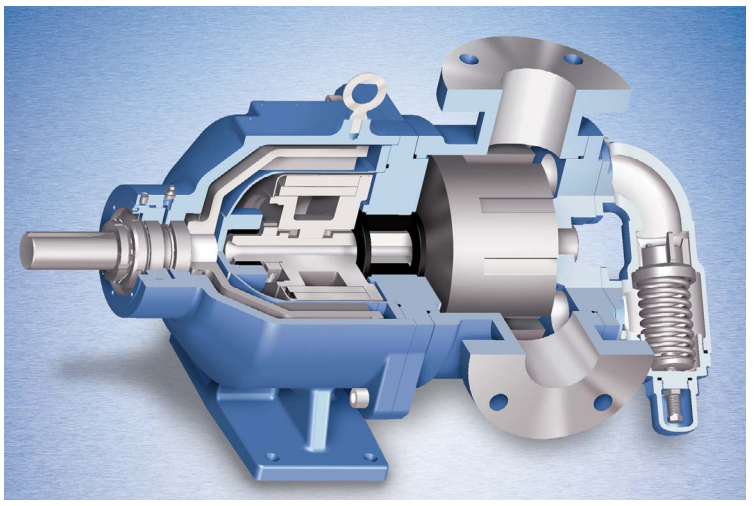

**www.defelsko.com**

## Viking's Universal Mag Drive Series

Viking Pumps' line of Universal Mag Drive series adds a sealless option to the Universal Series Pumps. Dimensionally interchangeable with Viking's most popular Heavy Duty packed and sealed pumps, the Universal Mag Drive Series provides a proven simple solution for upgrading existing pumps. This sealless pump features a thrust-controlled design that allows short-term run-dry capabilities and bi-directional pump operation for enhanced application flexibility.

Available in cast iron, steel and stainless steel, these sealless pumps eliminate seal leakage and environmental concerns, along with downtime due to seal replacement. They are ideal for hazardous, hard-to-seal liquids or for applications where very low maintenance is a requirement.

**www.vikingpump.com**



## EXEL Flomax

EXEL North America introduces PU2160F Flowmax Meter Mix Systems. This Mechanical Meter Mixing solution for Airmix applications incorporates Flowmax Bellows technology.

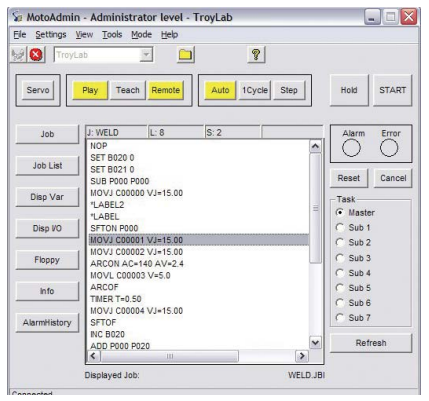
The System combines Flowmax & Airmix spraying technologies with low investment for 2K applications. It has stainless steel wetted parts compatible with water- based materials, as well as Economic Solution: FAST (small fluid section size) and EASY (manifold) flushing and color changing with a low solvent consumption. Spraying is done with an Airmix gun using 04 to 09 tip ranges. Fixed Meter Mixing Ratios are 1:1, 2:1, and 10:1.

**www.exel-na.com**

## Motoman Advanced Robot System

Motoman offers advanced robot system networking and communications capabilities that enable secure connections between remote PCs and Motoman robot solutions on the factory floor, providing simple to sophisticated cell control, monitoring and backup.

MotoAdmin software provides remote control, status monitoring, and backup of robot programs and data through a secure network connection with three levels of password protection. Via a PC connected to the robot controller, a user can remotely view and manipulate robot system data, including uploading, downloading, and viewing jobs (programs), variables and I/O. Jobs can be started, stopped or put on hold, and robot modes can be monitored. Programmed jobs can be changed only with the supervisory password. Alarm history can also be downloaded and viewed. Robot alarms can be canceled and reset. File Management System software performs automated file backup and archiving functions, providing security for your intellectual property (process knowledge) as well as version control of programming data.




MotoFTP is PC-based software with three-levels of security that enables users to upload and download robot files to and from the robot controller via File Transfer Protocol (FTP) connection. It also has a feature that allows the operator to compare a file on the robot controller to a previously stored file on the PC and identify any changes that may have been made.

MotoCom SDK is a robot communication software development kit that provides users with the ability to create custom applications that communicate with Motoman robots, allowing control of a robot and its data through a communication connection (interface). Example interface screens can easily be modified and customized to provide a flexible and unique communications interface for your robotic system.

**www.motoman.com**



## AD INDEX



## CLASSIFIED

# Henkel

For more than 130 years, Henkel has been a leader with brands and technologies that make people's lives easier, better and more beautiful. Henkel operates in three business areas – Home Care, Personal Care, and Adhesives Technologies – and ranks among the Fortune Global 500 companies. In fiscal 2006, Henkel generated sales of 12.740 billion euros and operating profit of 1,298 million euros. Our 52,000 employees worldwide are dedicated to fulfilling our corporate claim, "A Brand like a Friend," and ensuring that people in more than 125 countries can trust in brands and technologies from Henkel. In North America, Henkel markets a wide range of well-known consumer brands including Purex ® laundry detergents, Dial ® soaps, göt2b® hair styling products, and Right Guard® antiperspirants.

Henkel is the market leader in adhesives, sealants and surface treatments for the industrial market. Backed by extensive design capabilities, a broad product range, specific application knowledge and technical expertise, the company delivers solutions that benefit customers by reducing costs while achieving superior quality and productivity. Through powerful brands like Loctite ®, Teroson®, AquenceTM, Bonderite ® and Hysol®, Henkel serves numerous industries including the transportation, electronics, aerospace, metal, durable goods, consumer goods, maintenance and repair, and packaging industries. As environmental sustainability becomes a greater corporate responsibility, Henkel products help our customers deliver on the legal, social and financial requirements of their customers and the environment.

Henkel has been acknowledged as an innovator throughout its history, beginning in 1907 when Fritz Henkel developed the first self-acting laundry detergent. This tradition of innovation was further reinforced when in 1922, an imminent shortage of glue threatened the labeling of Henkel's consumer products. This was the birth of Henkel Adhesives Technologies. Originally supposed to be produced only for Henkel's own needs, adhesives soon became a business segment in its own right. It all began on June 22, 1923, when the very first delivery of adhesives left the Henkel facility in Düsseldorf, Germany. This historical milestone marked the birth of a business segment in which Henkel is now a global market leader.

The interdependency of both surface preparation and treatment with that of adhesion is what has lead Henkel to blend these business sectors together to form our newest business sector, Henkel Adhesive Technologies. This coupled with change in both the methods in manufacturing and assembly — to meet the demands of innovation, regulations and the environment — Henkel in now positioned more than ever to be your one stop solution provider.

Many people interact with products from Henkel Adhesives Technologies every day without even knowing it: cars, mobile phones, furniture, books and many more things in our daily life could not be made the way they are or would simply fall apart without solutions from Henkel.

Today Henkel Adhesives Technologies is the world market leader for adhesives, sealants and surface treatments with a worldwide presence in more than 125 countries. With a staff of 21,700, Henkel Adhesives Technologies generated sales of approximately 5.5 billion euros in 2006, 44 per cent of Henkel company sales.

Innovation in this sector has brought forth products such as our newest generation of Aquence® Autophoretic coatings, phosphate free and energy efficient conversion oatings under the Bonderite® brand name, as well as many new adhesives and sealants under both the Teroson® and Loctite® brand names.

Henkel has grown rapidly in North America during the past several years and now generates about 23 per cent of worldwide sales in this region. Both in Canada and the USA, we offer Customer Service Laboratories for customer testing and pilot line lab simulations. We have approximately 6,600 North American employees ready to provide your company with quality products and solutions for your business needs.



For further information please contact us at: HYPERLINK "http://www.henkelna.com" www.henkelna.com or

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**"Backed by extensive design capabilities, a broad product range, specific application knowledge and technical expertise, the company delivers solutions that benefit customers by reducing costs while achieving superior quality and productivity."**

# THERE IS SOMETHING COMING TO YOUR SURFACE.

## Henkel's network of Autodeposition Process Centers delivers industry leading performance for the most demanding coating applications.

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**Dynamic Coatings, Inc.**
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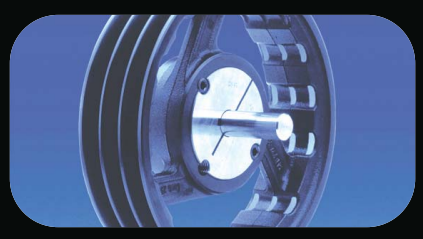
**For coating services outside the US and Canada, please call 866-332-7024 or +01-248-583-9300**

## *"The Smart Coating Solution"*

- Coat assemblies instead of individual parts – only coats ferrous surfaces, leaving other surfaces untouched



- Superior edge corrosion protection


- Environmentally friendly coating option

**Contact your local Autodeposition Process Center for your Autophoretic® Coating Chemical needs or contact Henkel at 866-332-7024. You can also find us on the web at www.autophoretic.com. Email: a.coat@us.henkel.com**

Henkel