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Double Show Issue:

- Canada Woodworking East
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CFCM Canadian Finishing & Coatings Manufacturing is published bi-monthly by Wilkinson Media Canada Inc. Subscriptions are free to qualified Canadian finishers and coatings manufacturers and their suppliers. Subscriptions (six issues): Canada \$60.00 per year plus taxes (GST #858877210 RT0001). United States U.S. \$57.00. Foreign U.S. \$85.00. Single copy \$12.00. Buyers Guide \$40.00 CDN plus taxes.

Postal Information:

Printed in Canada. Publications Mail Agreement PM # 41515012
Return undeliverable Canadian addresses to CFCM Magazine Return undeliverable Canadian addresses to CFCM Magazine, Suite 259, 2186 Mountain Grove Ave. Burlington, ON Canada, L7P 4X4, Copyright 2016.

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Wilkinson Media Inc.

Suite 259
2186 Mountain Grove Ave.
Burlington, ON Canada
L7P 4X4

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Watching What You Make

This issue's feature on Testing Instruments is apparently the first time we've reported on systems for performing the Bresle test. I confess I hadn't heard of it myself until early September.

The technique dates to the mid-1990s, and is part of the ISO 8502-6 and 8502-9 test methods. If you don't use Bresle, you should know it's for testing salt levels on metal substrates, which interfere with adhesion of coatings.

The industry has used gloss meters since before the days of waterborne products, or powder coatings. Ditto for spectrophotometers, though those have been coming down in size and price, and up in versatility, for ages. And so on through numerous other types of thickness, hardness and color measuring instruments. Now it's expanding more aggressively into checking salt levels.

Productivity and quality aren't just

ways of improving a finished product, but are vital to ensuring there are products to make in North America. Several people interviewed for stories in this issue mentioned how re-shoring finally seems to be happening after the long and worrying exodus of manufacturing to China. The downside is that much of that work is going to Mexico, not further north.

Industry in Canada is slowly but steadily growing at the moment, and recovering a lot of the ground in lost in the 2008-9 meltdown. But although there are solid advantages to making things here, such as a lack of language barriers and fast delivery, the key thing in future is going to be the quality of Canadian workmanship. Attractive pricing and having the truck at your loading dock right when you need the pieces is little use if the quality is below what's available from elsewhere. We like to



think customers look at 'Made in Canada' labels, but they always look first at cost-estimates or price-tags.

Testing surfaces and their finishes is unexciting work, and easy to overlook. But accurate assessment of what a job entails, and how well your workers are meeting the standards, is vital for your company's future health. Keeping testing instruments up to scratch is key to accomplishing that.

Edward Mason
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The advertisement features a large background image of a worker in a dark jacket and helmet using a bristle blaster on a large metal surface. A close-up inset shows the blaster's rotating brush head cleaning a surface. Another inset shows the blaster being held by a gloved hand. The text is overlaid on the image in various colors and fonts.

Fabtech 2016 Announces Program

Fabtech 2016 is North America's largest show for technology, equipment and knowledge in the metal forming, fabricating, welding and finishing industries. This year's show takes place November 16-18 at the Las Vegas Convention Center, Las Vegas, NV. The organizers recently announced a series of special events happening throughout its three days.

Wednesday morning, November 16, boxing legend Sugar Ray Leonard shares his views in a keynote address on how to achieve greatness by setting the fears of the unknown aside with preparation, focus, discipline, determination and the right attitude. Later in the day, William Gaskin, president of the Precision Metalforming Association, will guide panelists from Armada Corporate Intelligence, The Franklin Partnership, LLP, and the National Association of Manufacturers through a discussion on the 2016 presidential election, which will have concluded a week before the event opens. They will cover its potential impact on American manufacturing, how it will affect the business climate for capital investment and tax updates, and what it all means for attendees' businesses.

Thursday, November 17, begins with a Women of Fabtech breakfast, followed by a tech tour. Jennifer Cipolla, Center for Additive Technology Advancement at GE, will discuss how GE is merging hardware and software to reimagine how products are designed, made and serviced. Later, Carl Dekker, president of Met L Flo, Inc., will moderate a panel of experts that will explore the technology and materials driving practical solutions and innovations using 3D printing. Panel members from Formlabs, GE, Linear Mold & Engineering, Inc., and Materialise USA will take questions and provide answers based on real world case studies.

The afternoon will feature a forum on Advanced Manufacturing: Creating Competitive Advantages for Product Development. Advanced manufacturing experts from Autodesk, Oak Ridge National Laboratory Manufacturing Demonstration Facility and Plex Systems will discuss what it takes to remain competitive in today's environment and succeed in the future of making things. The late afternoon will feature the Fabtech Happy Hour, for relaxing and networking.

And, for those with the stamina, Friday, November 18, will start with the fourth annual RUN4MFG 5K run, to benefit nonprofit educa-

tional foundations and scholarship programs managed by Fabtech partners.

AkzoNobel Relocation Cuts Energy Use

The \$10-million relocation of its Strongsville, OH, research facility has allowed AkzoNobel to turn its biggest energy user in North America into one of

the smartest and most energy efficient.

Completed in November last year, the facility is only a third the size of the former location. Designed to use less than a third of the natural gas, electricity and water, it has now been recognized under the worldwide LEED (Leadership in Energy and Environmental Design) green building certification program.



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Inside AkzoNobel's energy-efficient facility.

The site also won an innovation award from the Economic Development Authority in the City of Strongsville. This was awarded to recognize both the products that are developed at the location — such as BPA-free coatings for beverage cans — and the facility itself.

“The new Strongsville Technology Center is a great example of our Planet Possible approach of doing more with less and could well be a model for future AkzoNobel site relocations,” said Greg Bengtson, business director North America for AkzoNobel's Metal Coatings business. “The LEED certification also sends a message that we are serious about our concern for the environment.

Every action we take and every new product we create should be world class with respect to its environmental footprint.”

During the building phase, 87 percent of non-toxic construction waste was recycled and diverted from landfill. Sustainable building materials were also used, including adhesives, paints, coatings and flooring. The new facility, a retrofit of an existing building, has designated areas for recycling paper, cardboard, aluminum and plastic.

In addition to efficient lighting, energy and HVAC systems, AkzoNobel purchased Green-e certified Renewable Energy Certificates (RECs) to offset 100 percent of its energy use for two years. The facility houses development and innovation activities for the company's coil, extrusion and packaging coatings customers and also serves as the regional headquarters.

Electrocoat Association Launches New Website

The Electrocoat Association has launched a new website, www.electrocoat.org. The updated design and new functionality, the association says, reflect

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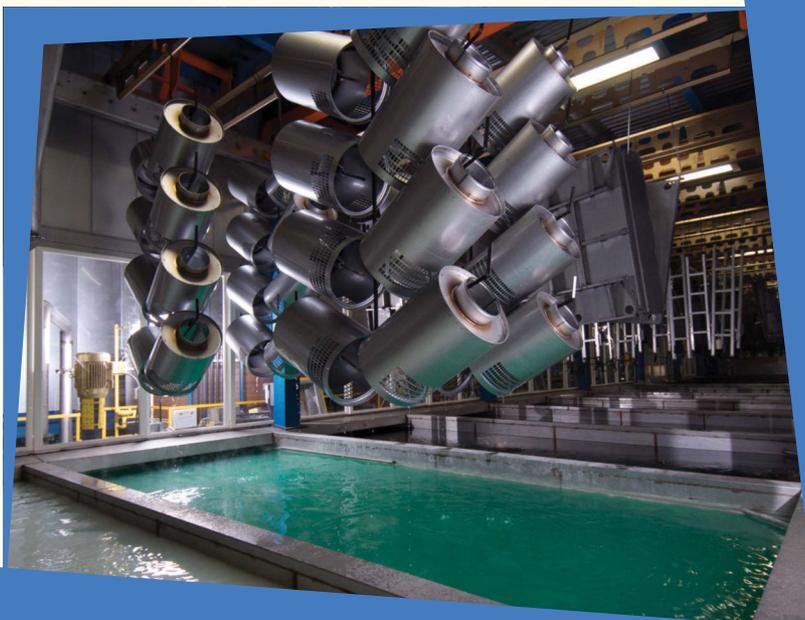
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the organization's brand and objectives as it works to enhance its presence in the finishing industry.

BASF Acquires Henkel's Flooring Business

BASF and Henkel have signed an agreement under which BASF will acquire Henkel's professional western European flooring, tiling and waterproofing business. The intention is to strengthen BASF's product portfolio in construction chemicals.

The transaction includes Henkel's flooring products, sold globally under the Thomsit trademark. Included in the transaction is Henkel's flooring, tiling and waterproofing business in western Europe, currently sold by specialized retailers or under the Ceresit brand.

BASF and Henkel have agreed BASF will use the Ceresit trademark for the western European business in the categories of tiling and waterproofing. Principal markets will be Germany and the Benelux countries.

BASF intends to integrate the acquired business into PCI Group, a wholly-owned subsidiary of BASF and part of its construction chemicals division. PCI Group has a leading position in the German market for tile fixing systems.

Chromaflo Technologies Finds New Owner

American Securities LLC has partnered with management and signed a definitive agreement to acquire Chromaflo Technologies Corp., a producer of proprietary, high-performance colorants and chemical dispersions, from Arsenal Capital Partners and Nordic Capital. The transaction is expected to close in November 2016 and is subject to customary closing conditions and regulatory approvals. Financial terms of the transaction were not disclosed.

Headquartered in Ashtabula, OH, Chromaflo is an independent global supplier of colorant systems, chemical and pigment dispersions. Its family of brands includes more than 200 product lines and 7,000 products, serving customers across six continents.

Scott Becker, president and CEO of Chromaflo, said, "We look forward to partnering with American Securities. They are ideally positioned to support our next phase of growth and development as we look to expand our product offerings, geographies, and market reach. "American Securities has significant experience in the specialty chemical

sector and a broad and experienced team, which will aid in our expansion. We look forward to working with them as we continue to focus on providing highly technical colorant and chemical solutions to our customers and markets."

Scott M. Wolff, a managing director of American Securities, commented, "We believe that Chromaflo's commitment to product innovation,

combined with its experienced and customer-focused management team, positions the company for continued growth. We look forward to bringing our resources to bear to support Scott Becker and the rest of Chromaflo's management team toward continued success."



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in the **NEWS**

**Nuplex Joins Forces
with Allnex**

Nuplex Industries, a global manufacturer of resins, and Belgium-based Allnex, have now formed one company. The group, active on four continents, serves customers in over 100 countries. The company will operate under the name of Allnex and is using a new logo that is a symbolic representation of the combined strengths of the two companies.

Miguel Mantas, the new CEO of Allnex, commented, "I am delighted that this business combination has taken place. With our comprehensive, state-of-the-art technology portfolio, our ability to provide clients with the right chemistry for their products is even more extensive than before.

"I am also looking forward to moving our corporate headquarters to Frankfurt. The decision to choose Frankfurt for the future company's headquarters was taken with the intention of establishing a new location, symbolizing a fresh start for the company. Frankfurt offers excellent flight, rail and car connections. The city is located in the heart of Europe and Germany, the largest European economy and a key market for the company and for the coatings industry in general."



Name will be used for the two conjoined companies.

RPM International Purchases SPC

has acquired Specialty Polymer Coatings Inc. (SPC), a Canadian manufacturer of high-performance coatings for the global oil and gas pipeline market with annual net sales of approximately US\$26-million. It will operate as a free-standing business within the RPM Performance Coatings Group and report through the Carboline Co. Terms of the transaction, which is expected to be accretive to earnings within one year, were not disclosed.

The SPC product line is comprised predominantly of 100-percent solids epoxy and urethane coatings that contain no volatile organic compounds. They are specified and sold for the maintenance and construction of steel pipes, railway cars, tank linings, steel structures and marine applications. Headquartered near Vancouver, in Langley, British Columbia, SPC also has a manufacturing facility in Brantford, ON, and an office and warehouse in Angleton, TX.

"We already have a strong position in the US oil and gas energy market through our Carboline business," said Frank C. Sullivan, RPM chairman and CEO. "The acquisition of SPC complements that position by providing a proven, tenured technology with strong brand recognition for the pipeline industry. We intend to accelerate SPC's growth by leveraging Carboline's large global sales force.

"In keeping with our reputation as the best home for entrepreneurial businesses in our industry, several members of the current senior leadership under the founder, Bob Alliston, will continue to manage the business as part of RPM."

Dow-DuPont Merger Hits Regulatory Obstacles

The proposed \$130-billion merger between the Dow Chemical Co. and DuPont has hit a snag in Europe, where the review of the deal is being paused. Regulators at the European Commission are asking for more information from the two companies, though what that might be has not been publicly stated.

When the deal was announced in July, the companies forecast comple-



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The Dow - DuPont merger is facing regulatory enquiries.

tion by the second half of 2016, if US and other antitrust regulatory commissioners approved the deal. This timeframe switched to early 2017 when the EC announced a revised review deadline of January 11. With the postponement of the investigation, the review deadline will likely be pushed back further.

DuPont sources have indicated the matter is a

matter of producing documents could be managed quickly. However, a US Senate committee is also looking into the fusing of the two chemicals giants, and there are separate enquiries in both Canada and Brazil.

It is understood the primary areas of concern are not in the coatings area, but in the agricultural side of the conjoined businesses. The intent, following completion of the merger is to split the company into three, one handling materials science, one handling agriculture, and one looking after what is being called specialty products. The fact that the result would be to create the world's largest integrated crop protection and seeds company, even bigger than the recently announced purchase of Monsanto by Bayer, is the key area of regulatory interest.

That said, the European Commission has also stated that "it would also create a leading integrated producer of certain petrochemical products that are widely used in packaging and adhesive applications. The transaction would take place in industries that are already globally concentrated."

Enbridge-Spectra Merger



Enbridge president Al Monaco (left) with Greg Ebel.

The merger of Calgary's Enbridge Inc. with Texas-based Spectra Energy will create the largest energy infrastructure company in North America, with an estimated market value of \$127-billion. The move was announced on September 6.

Under the agreement, Enbridge will buy Spectra Energy in a stock-for-stock merger transaction, which values Spectra Energy common stock at \$28-billion. Upon completion of the transaction, Enbridge shareholders will own approximately 57 percent of the combined company, and Spectra Energy shareholders will own approximately 43 percent. The combined firm will be called Enbridge Inc.



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Enbridge operates the world's longest crude oil and liquids transportation system across Canada and the US, while Spectra Energy's North American operations include 21,000 miles of natural gas and crude oil pipelines, approximately 300-billion cubic feet of natural gas storage, and 4.8-million barrels of crude oil storage, as well as natural gas gathering, processing and local distribution operations.

Enbridge has been looking for opportunities to diversify its asset base beyond 2019, according to Al Monaco, Enbridge president and CEO (on left in photo). Combining with the natural gas infrastructure company will help it reach that goal, he said.

"This transaction is transformational for both companies and results in unmatched scale, diversity and financial flexibility with multiple platforms for organic growth," he stated.

Monaco will stay as president and CEO of the combined company. Spectra Energy President and CEO Greg Ebel will become non-executive chairman of Enbridge's board of directors upon the deal's close.

Study Projects Paint and Coatings Sales Globally

Kusumgar, Nerlfi & Growney has announced its third Global Paint & Coatings 2016-2021 study. According to the firm, global consumption of coatings in 2016 is a projected 88-billion lb (40 MM tons) worth some \$130-billion.

Growth has slowed in recent years, the report says, following the modest bounce back from the recession year of 2009. The Asia-Pacific region continues to lead the way in growth. However, growth in Asia-Pacific has also slowed owing to global and local economic uncertainties. The recent decline in raw material prices has contributed to downward pressure on coating prices.

This region remains the largest consumer of coatings with an estimated 47 percent of the volume in 2016. China accounts for over one-half of the consumption with growth moderating in the last two to three years following the rocket rise in prior years. India now accounts for about 15 percent of the regional volume and continues to increase its share.

Europe is the second largest market for coatings taking a projected 23 percent of the global

volume in 2016. Growth remains low in most EU countries, with the decline in the Russian economy causing a drag on consumption. The prospect of waning growth in Turkey is, the report says, a headwind for the near future.

North America was an outlet for 17 percent of the global coating volume in 2016 and has mature growth prospects. The South and Central America region represents seven percent of the global demand in 2016. Growth in the region has slowed significantly with the recession in Brazil being the leading cause.

Finnish Conglomerate Buys German Coatings Firm

Finnish-based Teknos Group Oy. has completed the acquisition of the industrial coatings business from Feidal Coatings. Feidal Coatings is a privately held, German-based company that develops, produces and sells paints and coatings. Feidal Coatings' business divisions include industrial coatings and decorative paints.

The company had reportedly faced difficulties in continuing in its current form, and in August its decorative paints division was sold to another

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German company, Meffert AG. Teknos has made other acquisitions recently, including Massco, a Russian-based metal coatings supplier.

Feidal's industrial coatings business has estimated net sales of C\$27-million, and the company has approximately 80 employees. The transaction includes the acquisition of Feidal GmbH & Co. KG, a factory in Brügggen, and the industrial coatings business of Feidal Polska Sp. z.o.o. The Brügggen plant will continue manufacturing industrial metal paints.

"The acquisition of industrial coatings business from Feidal Coatings strengthens our position in general industry coatings," said Paula Salastie, CEO of Teknos Group. "We will now focus on building the business forward in close cooperation to ensure high quality and improved service level to our customers."

No price for the purchase has been disclosed.

Powder-Coated Glass Tower Wins Design Award

The Tower at PNC Plaza in Pittsburgh, which features a double-skin façade fabricated with PPG's



Architect's rendering of the Tower at PNC Plaza.

Sungate 400 glass, Starphire Ultra-Clear glass and Corafalon Sunstorm powder coatings by PPG, has earned Architect magazine's 2016 R+D Award for High-Performance Building.

The double-skin façade, one of the first of its kind in North America, combines with two vertical thermal shafts and a solar chimney to naturally ventilate the 33-story skyscraper without electricity or fan power for more than 40 percent of the year. As a result, the Tower at PNC Plaza, which opened

Oct. 1, 2015, is expected to consume up to 50 percent less temperature-control-related energy than comparable buildings of its size.

The inner and outer curtain walls incorporate metal framing finished with Corafalon Sunstorm fluoropolymer powder coating in Mica Gray, and Sungate 400 and Starphire glasses. Corafalon Sunstorm powder coatings, PPG says, meet or exceed American Architectural Manufacturers Association (AAMA) 2605 specifications, the industry's most rigorous standard for weathering, corrosion and chemical resistance, color and gloss retention, and other criteria. They are formulated without solvents and emit virtually no volatile organic compounds (VOCs).

With a nighttime winter U-value of 0.32 in a standard 1-in. insulating glass unit (IGU) with clear glass, Sungate 400 glass is engineered to enhance the insulating performance of buildings in heating-dominated climates. It has visible light transmittance (VLT) of 76 percent for heightened transparency and a solar-heat-gain coefficient (SHGC) of 0.60 to block solar heat and keep buildings cooler in the summer.

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People News



Anne Longakit

Anne N. R. Longakit is the 2017 recipient of the Canadian Paint and Coatings Association's annual scholarship for deserving sons or daughters of staff employed at its member companies. She is the daughter of one of the staff members of

Cloverdale Paint. On the Dean's Honour List, she is currently enrolled in the third of a four-year Bachelor of Science program at the University of British Columbia, majoring in biology.

"CPCA is proud to support the sons and daughters of member companies and award students who deserve recognition for their high academic achievement," said Gary LeRoux, president and CEO of CPCA. "We are certain that Anne's hard work will only lead to many more successes for her in the future."

The \$2,000 scholarship is awarded to a high school or post-secondary student based solely on their academic achievement. The selection is made by the CPCA Education and Training Committee.

RadTech Names EHS Chairman

Michael Gould of Rahn Corp. is the chairman of RadTech's new Education, Health and Safety (EHS) Committee. His position at Rahn is as technical key account manager for energy curing USA. He will be holding a meeting on November 3 at the RadTech Fall Meetings in Austin, TX.

Viola Joins American Plating Power

George Viola has joined American Plating Power as a senior applications engineer. American Plating Power manufactures and distributes an expansive line of switch mode and SCR-style DC

power supplies for a wide variety of manufacturing processes.

Viola's experience includes all aspects of rectifier engineering, applications, and sales. After receiving an electrical engineering degree from the



George Viola

University of Hartford, he immediately started to work at his uncle's DC power supply company, and he has continued to work in the rectifier business ever since.

"We are extremely excited to have George on board here at American Plating Power", said Waasy Boddison, president of American Plating

Power. "George's rectifier expertise and strong process knowledge, as well as his extensive industry relationships, are second to none." Viola's initial focus is to provide customers with technical expertise and support, as well as to work on new business development.

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Continued Struggles on GHS Alignment



BY GARY LEROUX

CPCA recently learned that Health Canada would hold a joint multi-stakeholder consultation meeting to discuss future regulatory amendments in early 2017 with respect to the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) in Canada. CPCA and its members have long prioritized GHS, and the association in particular has worked closely with government officials, to clarify concerns related to concentration ranges and confidential business information (CBI) claims as well as other variances. The Ministry said it is accepting comments on its current technical guidance (Part 1), which may be considered for future revised versions of the guidance. Stakeholder comments will also be accepted after the next technical guidance (Part 2) is published sometime in the fall of 2016.

In mid-September, CPCA filed a formal response to a proposal by the federal government for the development and maintenance of a Workplace Hazardous Materials Information System (WHMIS) 2015 classification database for hazards. This classification list aims to establish an ongoing national harmonization approach for hazard classification and related communications requirements for chemicals found in the workplace.

The majority of CPCA members favoured this initiative but some expressed a number of concerns regarding the government's 'charge' questions such as confidentiality, enforce-

ment, implementation and global harmonization. Canada's WHMIS 2015, the country's version of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in the workplace, focuses on two types of hazard classes: health and physical, each containing specific hazardous properties for assessment purposes. Health hazards include such things as reproductive toxicity and respiratory or skin sensitization. Physical hazards relate to physical and chemical properties like combustible dusts or flammable solids. CPCA will continue to keep a close eye on this file and advise members of future developments on GHS, focusing on mitigating any potentially negative impacts on industry from government actions.

Staying in the Loop

Keeping its members abreast of developments that may have the potential to impact their bottom line is of utmost importance to CPCA. The association's latest endeavor is the creation of a database that indicates the status of 4,370 substances contained in the Chemicals Management Plan (CMP) and provides up-to-date details and links related to the 'challenge' approach in CMP-Phase 1, CMP-Phase 2 sub-groupings and the CMP-Phase 3 publication plan. This database also includes additional substances identified for future cycles post-2020. The association will update this database on

a regular basis for the benefit of its members in terms of government actions and CPCA's efforts on behalf of industry. It is critical that all industry data is provided to ensure a fair and accurate assessment of chemicals in terms of use and potential impact of government actions.

CPCA believes it is critical that it present a sound understanding of what works or does not work with respect to chemicals management. This comprehensive database is an integral element of existing data and knowledge-sharing access for members. Providing relevant and topical information will benefit businesses and governments alike, particularly with respect to potential bans and risk management actions in future.

In the meantime, the paint and coatings industry has effectively engaged in a collaborative work effort with the federal government, academia, industry and international authorities in support of a robust information gathering and risk assessment process for the substances included in CMP-3. Industry, it should be noted, has played a critical role in securing positive risk management outcomes related to the chemicals used in the sector, which in some cases included voluntary codes of practice, in lieu of regulations. Such collaboration between the association, industry and government clearly indicates how communication and cooperation can deliver results.

CPCA also paid close attention to the Final Screening Assessment of substances from Phase 2 of the Domestic Substances List Inventory Update. In late August, the assessment concluded that 612 of 869 substances did not meet any of the toxicity criteria under Section 64 of the Canadian Environmental Protection Act. This development was significant, highlighting how these substances do not have or may not have an immediate or long-term harmful effect on the environment or its biological diversity; do not constitute or may not constitute a danger to the environment on which life depends; or do not constitute or may not constitute a danger to human life or health in Canada.

Advisory Notes and Other Concerns for Industry

In September, CPCA obtained information that the government is preparing Advisory Notes on Polymers and an Advisory Note on Manufactured Items, as well as seeking to review and update the Non-domestic Substances List (NDSL). Publication of the advisory note on polymers, which will define polymers, monomer units, monomers and sequences, is anticipated in 2017. The advisory note on manufactured items should be completed in the winter of 2017. CPCA members, however, will have access to the information prior to their final releases to ensure it has time to submit important

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comments for future decision-making related to polymers or manufactured items.

Government officials also informed industry that they would formally review the NDSL with regard to actions in the United States and other international jurisdictions. In early summer, the government initiated a partial review of NDSL by proposing proposed that 741 substances be deleted from the NDSL, subject to restrictions in the U.S. The rationale behind this move relates to the fact that these substances are not seemingly used in Canada or if so are currently used in extremely low and insignificant quantities. Companies that use or plan to use at least 100 kilograms of these substances in each calendar year were required to submit comments that would help alert the government and ensure specific substances are considered for a “delayed removal.”

CPCA members also expressed some concern over the mandatory Canadian address that is required on the Safety Data Sheet and/or label of products. Several large US paint companies sell their industrial coatings through distributors in Canada, requiring them to work with different labels and SDSs for a single product. According to industry, identifying the original manufacturer listed on the SDS and label would be more appropriate because the necessary information would be provided with regard to the coating’s formula and safety concern.

The upshot of this is companies would save time and money as a result. According to the Hazardous Products Act and Hazardous Products Regulations, the information on the Canadian manufacturer (i.e. supplier operating and running a business in Canada) or Canadian importer must be identified on the SDS and label. An SDS and label containing only a US

address will be deemed non-compliant in Canada.

The only exception, CPCA underlines, is when an importer can include the information of the foreign supplier on the SDS and at the time a hazardous product is imported for use in the importer’s own workplace and only then. Companies need to take action accordingly to be fully compliant with the requirements.

VOC-Exclusion Status

In late summer, CPCA obtained information about VOC-exclusion status in existing VOC-related requirements in the Quebec Air Quality regulations and Metro Vancouver bylaw. The association was advised that Quebec seeks to fully align with Canada and the US EPA definition of VOCs. The Ministry responsible announced it would send a directive to all its regional divisions, asking them to consider the 16 new compounds as VOC-exempt compounds when validating compliance with the Quebec Air Quality regulations, until the regulations can be officially amended. The Quebec Air Quality regulations impose restrictions on total VOC emissions of paint and coatings manufacturing plants and industrial paint shops. At the same time paint shops are given the option to comply with the regulations by imposing VOC content limits with respect to the overall use of products or to specific industry paint categories. Metro Vancouver, meanwhile, informed CPCA that it will amend Bylaw no. 1086 (Automotive Refinishing Emissions) next year. The updated bylaw will reflect the recent addition of 16 compounds to the federal list of excluded (non-reactive) VOCs. A consultation will be launched in 2017 and the amended bylaw is expected to be approved by late 2017 or in 2018. CPCA believes these are important developments for regulatory alignment for the paint trade, which will also help maintain the protection of human health and the environment as fundamental objectives of governments, the association and its industry members.

ISO 10377

In late September, CPCA called on its members to review the national standard ISO 10377, which is being proposed for national adoption in Canada. The Standards Council of Canada contracted the Underwriters Laboratories (UL) to facilitate the adoption of ISO 10377, which assists suppliers in the management of consumer product safety issues. CPCA believes that industry’s input in this matter is important, particularly because it has the capacity to identify specific and necessary national differences, if any, from a Canadian perspective. This will be important for industry to monitor in the coming months. ■

Gary LeRoux is president and CEO of the Canadian Paint and Coatings Association, www.canpaint.com.

The Art of Masking

Masking painted and coated parts is one of the simplest jobs in principle, and one of the most intricate in practice. Precision in masking is critical for final product quality.

Cole Cooper, who handles marketing with Indianapolis-based Echo Engineering and Production Supplies Inc., points out that diecuts, which are pre-cut pieces of masking tape made to the exact size and shape of the surface areas to be masked, are a critical aid in saving time in the masking process. Ordering these from a supplier can save immense amounts of time through the production cycle.

“Diecut kits are great,” he says, “because they can be custom made to mask components that have multiple surfaces of different sizes and shapes, like an engine block. These kits reduce the amount of time spent looking for the right die cut piece. They also ensure that no surface in need of masking is forgotten as each kit can be made to the exact amount of die



Masking for precision metal piece. Photo: Echo Engineering and Production.



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cut pieces per component you are coating.

Another trick, employing plugs, is to order them in multiple color variations, for sizing identification purposes.

"Using multiple colors helps speed up the masking process," he says, "as you're now able to quickly associate which cap or plug goes to its designated spot rather than wasting time sorting through a variety of different caps or plugs. A few of our customers even use tie-dye plugs to avoid mixing with solid color plugs."

Custom-molded masks can also help decrease the amount of time spent on masking by speeding up the installation and removal processes. In some cases, they can even reduce the amount of total parts needed to completely mask components.

Powder coating has its own specific requirements, since the application process is different to that for traditional paint. In particular, there is a temperature factor to consider, since the coatings need to be baked on, meaning the masking has to be suited to the application. However, there is no problem with liquid to deal with, so seepage is less of a concern.

"We offer a Green Poly with a 3.5 mil thickness," Cooper says, "and that will handle up to 400 deg. F, or 204 deg. C. This is an industry favorite for general-purpose powder coating applications. We have a 2.5 Blue Poly that we recommend for uneven or curved surfaces."

For high temperature coatings, Cooper says a polyimide

tape is recommended, since it can handle heat up to 500 deg F. or 260 deg. C. Applications would include extended high temperature paint cures, baking between plating cycles, or masking on PC. This tape removes cleanly, and does not leave a residue. The company also supplies other products for the intermediate temperature range.

Not all high-temperature applications call for high-cost materials. Lee Benvenuto, Canadian general manager with Essentra Components (Oakville, ON), says some of his company's customers find EPDM rubber plugs are sufficient for their needs.

"These are still high-temperature materials," he says. "And we have a major customer using the rubber caps on their hooks, not just on the product.

"There's a cost associated with stripping the paint off the hook, but it's easy to remove these rubber coverings. We've seen growth in this type of product recently."

Essentra also offers a line of inexpensive hooks. These can be used once or a few times, then discarded, which addresses the problem of paint-stripping costs.

"We also have an extensive line of nylon products," he adds. "On our website, you will see a lot of nylon-threaded products, which are not necessarily more expensive than plugs made from other materials."

Custom design has shown a little growth, he says. Howev-

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er, the broad range of products Essentra offers means it can satisfy most of its customers with off-the-shelf items.

“Powder coating isn’t that different to working with regular paint,” he says, “except that with powder, there is no need to seal. You don’t need 100 percent sealing, because there is no liquid involved.

“Also, temperatures in powder coating have come down, so some lower cost options are available to powder coaters.”

Caps ‘n Plugs (Brampton, ON) recently expanded inventory levels at its Brampton warehouse, to avoid any problems with stock-outs. It has also added a high-speed tape slitter. This, says general manager Paul Hamilton, can slit any width, whether metric or in standard imperial sizes, of all the popular masking tapes.

“We have logs of blue polyester (1 mil thick), green polyester (2 mil thick), glass cloth and amber polyimide (Kapton) tapes available,” he says. “Our turnaround for cut tape for shipment is the same day, or next day at the latest.

“If our customer requires a custom mask,” Hamilton says, “we can produce a 3D rendering picture of the proposed mask for customer approval before any prototype parts are produced, for actual fit and functionality testing.”

As far as industry trends go, he says the main thing he has noticed is more requests for different types of rubber compounds. High temperature silicone is the most popular.



A selection of silicone masks from Caps ‘n Plugs.

Roughly three-quarters of sales are still for off-the-shelf designs, and a quarter are for custom-designed parts.

The shift to powder coating from paint has caused some coating operations to become creative. They will use existing masking products rather than opt for a custom design.

“Many off the shelf items are used in applications that were not the design intent of the part,” Hamilton says, “thereby by-passing the need for a custom part. We always look to see if a standard part can be used as a solution, rather than quoting a custom part.”



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Mighty Hook (Chicago, IL) provides an extensive range of masking caps and plugs, as well as special molded masking products. The company specializes in challenging designs.

It also produces silicone masking tubing, for masking threads, pins and tubing where a longer masking length is

required. The tubing is flexible but sturdy enough for use in masking threaded, non-threaded or slotted holes, and is easily cut for desired length. Additionally, its silicone foam cord can form a tight seal in threaded and non-threaded slots, grooves, irregular shaped cavities and through holes.



Echo Engineering plug-in masking for a cast metal component.

The company's Q-bolt is a masking product for threaded holes, with a hanging option. Consisting of a steel screw partly covered with silicone rubber, it gives a very tight masking seal and a smooth paint edge, and is suited for automatic mounting and removal.

Each Q-Bolt also has a threaded hole in the back making it easy to hang using an eyebolt. Originally offered in metric sizes M3 through M12, the line now also includes sizes M14, M16, M20, M22 and M24.

Mocap (Park Hills, MO) provides an extensive range of elastomeric and rubber plugs, though it also supplies masking tapes. As an alternative and inexpensive solution, it also offers paper caps and plugs.

The material it uses, the company says, is tough, yet flexible and is recyclable, so it can be seen as environmentally friendly. The high temperature-resistant paper material it uses withstands up to 400 deg. F (204 deg. C). In addition to being inexpensive and disposable single use masking caps for painting and coating processes, the paper plugs also offer low-cost protection of a thread or port during shipping and storage.

While many applications in coating and painting will always call for simple tapes and shapes, there are constantly emerging new needs for creative design. The masking industry is never going to cover all of these off the shelf, but today's suppliers have learned how to provide for new needs with fast turnaround. ■



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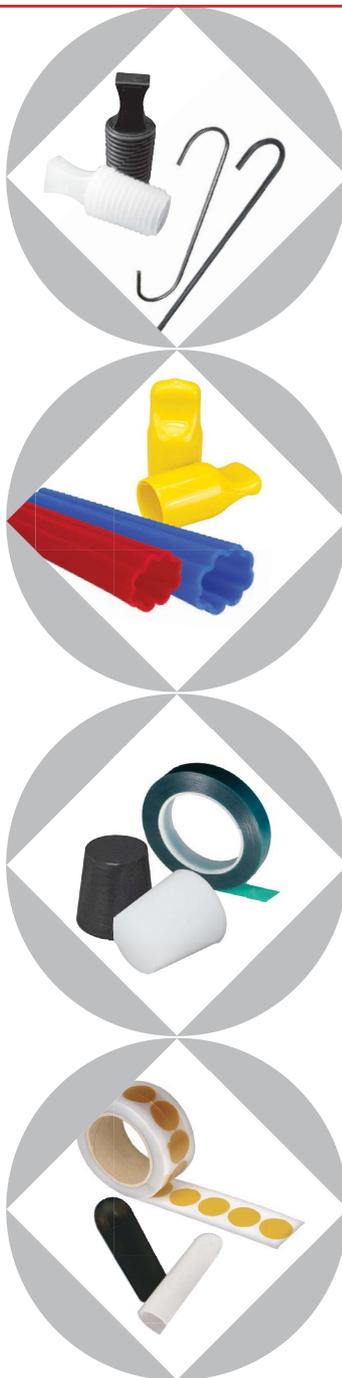


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Quality Keeps on Improving in Flatline Finishing

Flatline finishing is an area for incremental improvements. Machinery suppliers continue to develop faster and smoother production systems, and precision control over increasingly large panels constantly improves.

Exel North America Inc., which offers the Sames and Kremlin Rexson lines, sees smooth operation as the key demand from today's customers.

"Customers want something easy to work with, and easy to maintain," says S.T. Rajan, Exel's vice-president. "They want less downtime during maintenance."

His company's most successful innovation recently, he says, has been to have the automatic guns mounted in two sections. This avoids disturbing automatic gun settings, as well as requiring hardly any downtime, and being easy to clean.

Fashions in furniture and wooden fittings change all the time, especially in regard to types of finishes. Companies such as Exel adapt, in part, through developments in pump technology.

"This type of change is taken care of by supplying the Flowmax design pumps, where if the catalyst is moisture sensitive, it does not come in contact with air," Rajan says. "Coming in contact with air leads to gelling, and hence an inferior finish. Our two-component mixing systems ensure the required gloss levels will never change from what the customer specifies."

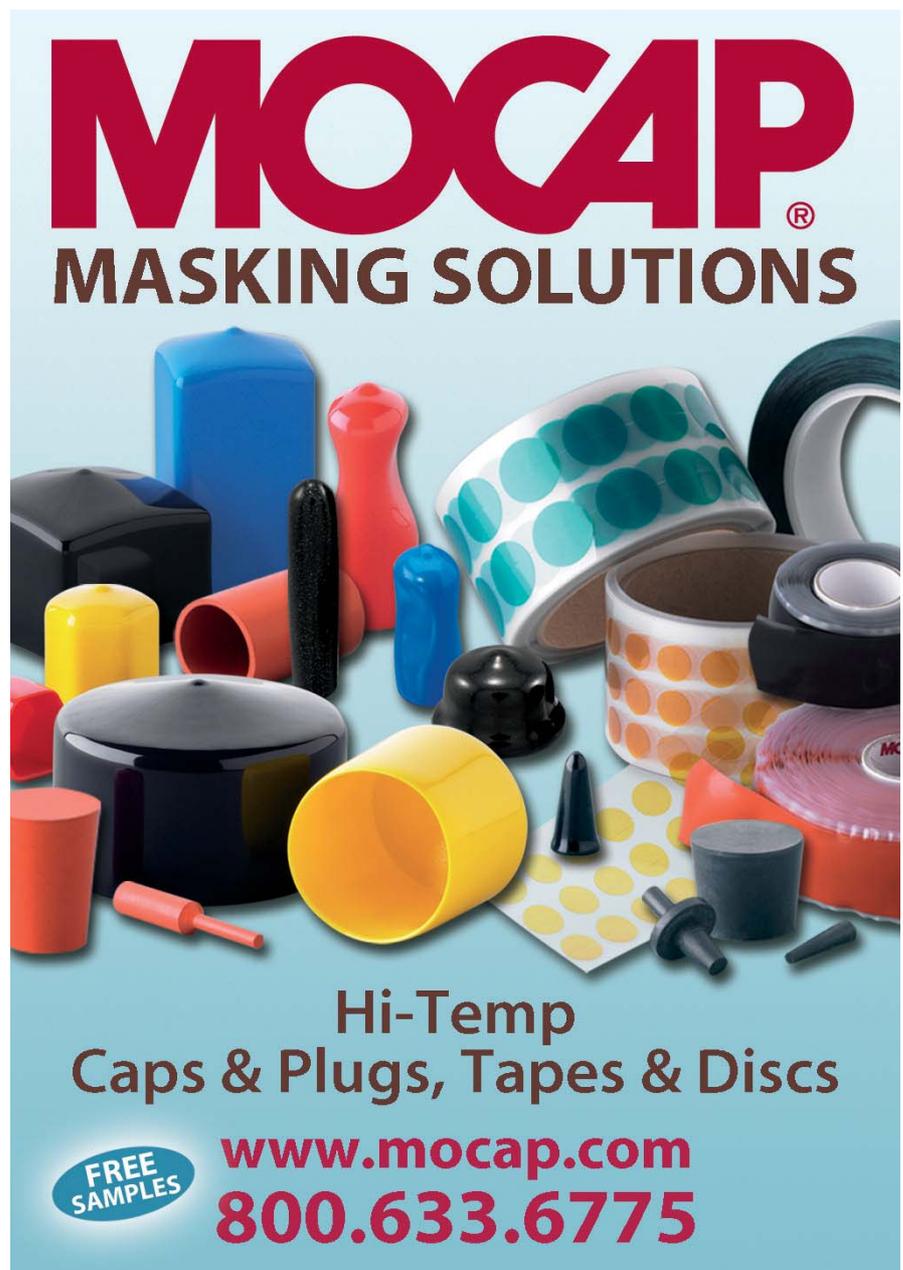
Greater levels of automation, he adds, are always on companies' wish-lists.

"This is always discussed," he says. "Customers are looking at common control panels making it easier for the operators to operate. Every customer is looking to automate his plant if possible."

Superfici's wood finishing products

in its DMC line include a full range of wood finishing systems, such as its Compact 3 R model. Production quality on this is guaranteed by the appli-

cation in two steps achieved by a double-arm reciprocator, and by the pressurized cabin, which features a downdraft airflow, a double filtration



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system at the air inlet and a wide filtering roof for the cabin.

Easy use and constancy in the production quality achieved by the Optispray software, which the company says controls the spraying parameters. The lacquer reclaiming unit achieves complete belt clearing and

the eventual re-use of the lacquer, which is collected by the system.

This system, Superfici adds, achieves all the advantages of the automatic spraying and makes them affordable to the small and medium-size enterprises. Finishing lines can be composed of a compact spray



Superfici Compact 3 R system.



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“Customers want something easy to work with, and easy to maintain.”

machine, combined with fast and efficient hot air drying systems, eventually completed by a Poliedra UV dryer for the three-dimensional curing of the work-pieces when applicable.

For large-scale panels, Superfici offers its Magnum system, which offers a production capacity with feed speed up to 18 meters per minute. Thanks to patented independent reciprocators, the company says, it will offer guaranteed quality in the lacquered work-piece because of the optimal lacquer distribution even in the most critical applications.

Quick lacquer change from one lacquering product to the next one is made possible with multiple lacquer reclaiming units and there is an optional integrated quick color change.

There are also guaranteed optimal conditions of the spraying cabin. The automatic filter change of the exhaust filters, using a patented, optional filter on demand system, makes it possible to change filters without any produc-

“Every customer is looking to automate his plant if possible.”

tion stop and reduces the maintenance operations.

Venjakob also offers a broad range of systems. Its Ven Spray coating machine is designed for smaller applications, up to 1300 mm wide. This stand-alone unit is designed to meet flexible production requirements and can be used for both solvent-based and water-based paints.

It can optionally be equipped with a belt cleaning system and/or a paper transport belt. This makes it possible to alternate between both modes of operation.

A quick change between two paint systems, the company says, is simple and fast. Feed speed is two to four meters per minute.

For plants with varying throughputs and types of applications, the larger Ven Spray Perfect system has a feed speed from three to eight meters per minute. The working width can be 1300, 1600 or 2200 mm.

The key thing, however, is the system's modularity. When the customer acquires it, it is capable of a range of work, from one-off batches through to large-series production at the high-end range.

The modular concept allows for



Venjakob's Ven Spray coating system.

implementation of different set-ups by means of retrofitting new modules. The user can, therefore, avoid having to invest in a completely new machine as customer demands change with time.

Not just improved control software and interfaces, but simply better engineering, has helped extend the capabil-

ities of flatline finishing systems in recent years. No system can offset inferior quality panels; but the ever-increasing versatility of the engineered systems available today ensures that coating operations can maximize their capital investments, and their productive time as well. ■

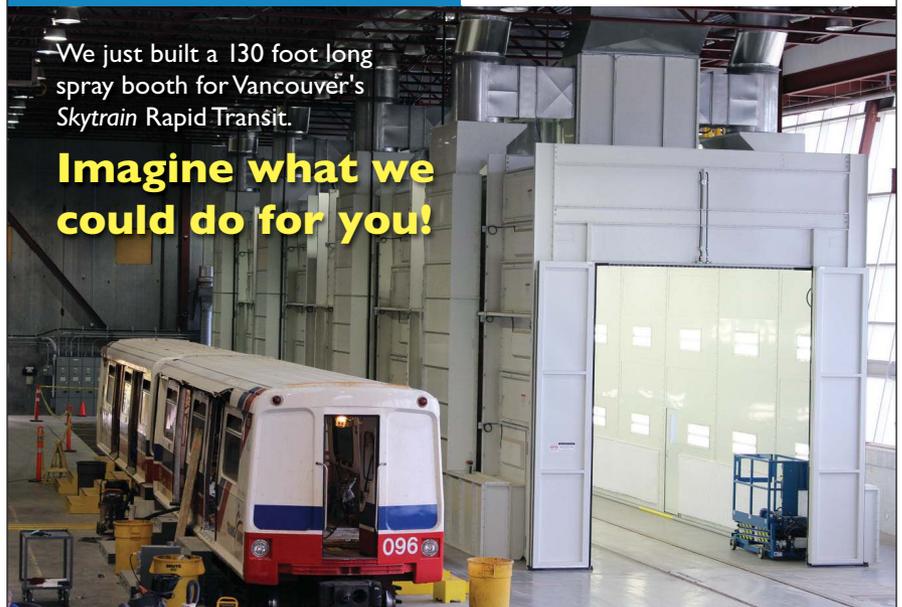
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The Continuing Shift to **Waterborne Wood Coatings**

Waterborne coatings for wood are increasingly popular. The reasons are not just environmental – i.e., their low VOCs – or for reasons of cost any more, since the quality of the coatings themselves has improved exponentially in the past few years.

The double trend in coating styles that has emerged recently is a split between customers looking for ultra-high-gloss finishes, and those who prefer a matte surface that highlights the natural feel and appearance of wood. Formulating for these two divergent preferences occupies a lot of formulators' time.



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The demand for applying skills for such changing formulas has led the University of British Columbia to institute a part-time, online certificate in Industrial Wood Finishing. This program, which runs from January 3 to April 10 next year, includes a one-week practical course.

Jason Chiu, technical specialist with UBC's Centre for Advanced Wood Processing, says, "The certificate program provides participants with a broad understanding of the field of wood finishing. It's designed for individuals who have some general experience in wood finishing and would like to expand their knowledge."

Those who complete the course will be given an understanding of why finish is applied to wood and how wood properties affect finishing be able to identify the best finishing system based on the end use. Also, the course will enable them to troubleshoot wood finishing problems, and to design a safe wood finishing facility.

"This course will provide the knowledge and tools to start a finishing business or to improve an existing one," Chiu says.

Suppliers to this highly competitive segment of industry need to stay on top of customer requirements. Canlak (Daveluyville, QC) provides a highly individualized service, and maintains a full team of laboratory technicians available 24/7.

The company develops new formulas on a daily basis, allowing it to satisfy the market's most challenging demands. And it reports constantly increasing interest in its water-based products, as consumers look for safer or less aggravating products for their homes, or simply choose to buy what suits their self-image.

"When it comes to aesthetics and performance, consumers are expecting waterborne finishes to look and feel like traditional solvent-borne coatings," says Mike Chrisomalis, Chemcraft product manager, North America. Chemcraft is a brand of AkzoNobel. "For manufacturers this means waterborne coatings need to be easy to apply and work in a similar fashion within their production facilities.

For AkzoNobel this is an ongoing commitment to supply the everyday essentials that meet their expectations."

He confirms the idea of a continued trend towards low gloss, natural appearance finishes in the furniture and flooring markets, while cabinetry

remains in the satin to low sheen range.

"Our Aqualux Uniclear waterborne topcoat offers outstanding clarity in a wide selection of glosses with performance similar to solvent-borne coatings that are in the market today," he says. "Our newest generation of Aquaprime



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“Waterborne technology has changed substantially over the past few years and we fully expect that to continue. Manufacturers that had avoided waterborne finishes in the past are now beginning to embrace the push towards new technologies. New coating lines that are installed are almost always geared around eco-friendly production techniques.”

The drive towards more waterborne coatings in the future is not only coming from regulations, he adds. Rather a more educated consumer base is now demanding low-VOC, sustainable solutions from the marketplace.

“We’re collaborating with our manufacturing customers to meet these demands. At Akzo Nobel,” he adds, “we believe that if we are to leave a healthy planet for future generations, we must



The trend towards high-gloss lacquered wood often shows up in designs for kitchens

be more sustainable in everything we do. That means working with customers and suppliers to develop leading solutions that do more with fewer resources.”

Valspar offers its third-generation Zenith waterborne lacquer as a waterborne coating for finishing fine woodwork. It has, the company says, exceptional film clarity that retains the natural warmth and character desired by professional wood finishers.

It has been formulated with proprietary resin technology to yield a finish that is superior in durability to conventional nitrocellulose finishes, and is a low VOC, HAPS-free formulation that con-

tains no isocyanate or formaldehyde.

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

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

Mixing techniques and the science of chemistry continue to push the limits with waterborne coatings. While some areas of finishing are fully mature, there is still room for growth of capabilities in this area.

And there’s also willingness among suppliers to find just how that growth can be exploited and sustained, for the benefit of all concerned. ■



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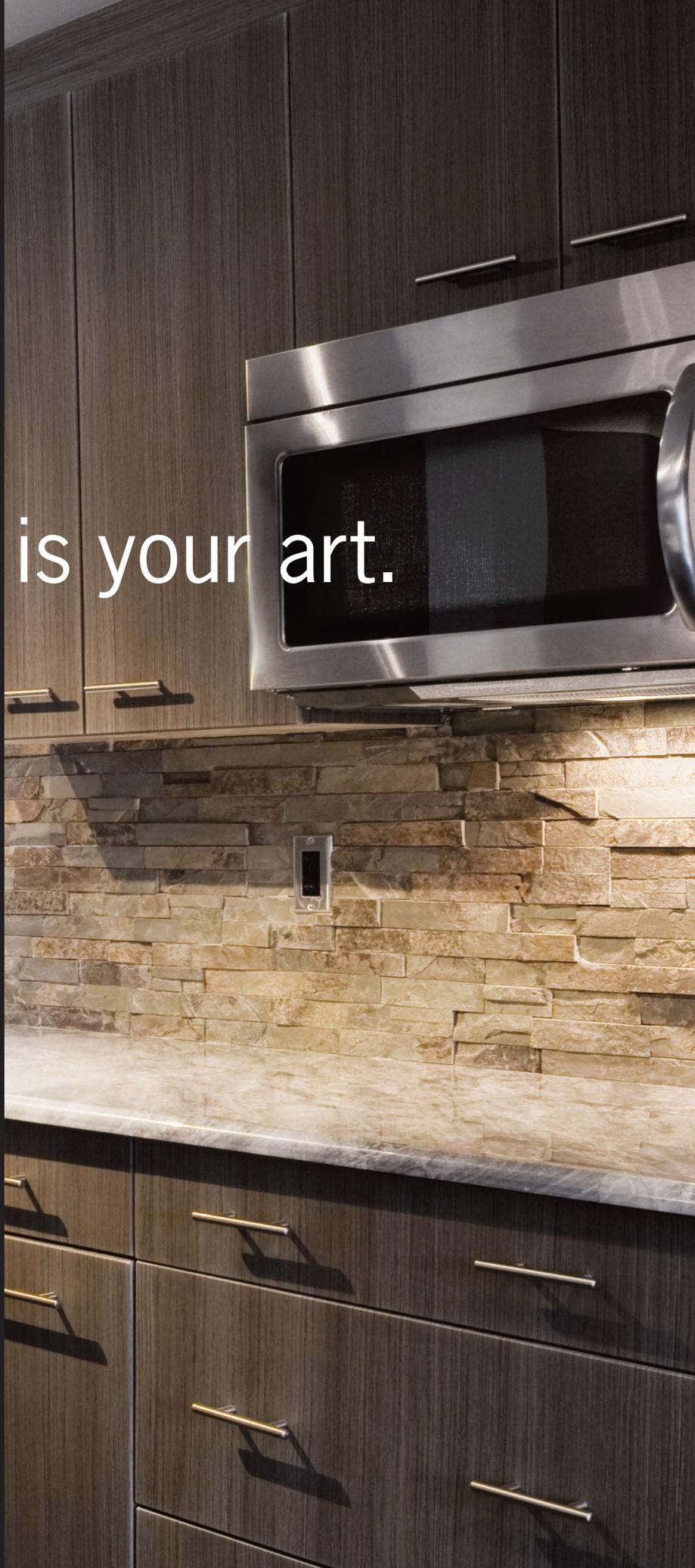
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TESTING INSTRUMENTS

Stay Ahead of the Curve

Instrumentation has never been as important in the coatings business. At one point, only automotive and aerospace had major requirements for quality control, but today it can be any customer. A good finish, done to the proper depth, consistency or gloss, is expected.

There are instruments available today that can either perform measuring tasks that were impossible at one point, or that could only be done at one time using methods that gave approximate results. Digital technology is obviously a factor, but so is the creativity of instrument designers.

Elcometer has just launched a new system for measuring the level of soluble salts on uncoated surfaces in accordance with ISO 8502-6. Its 130 SSP Soluble Salt Profiler is a portable, hand-held gauge that reliably measures four Bresle equivalent readings in less than three minutes. This, the company says, is more than four times faster than Bresle test methods.

The unit displays the peak salt concentration, not just the average reading, and offers pass/fail maps and 2D & 3D salt density profiles to provide visual indication of salt contamination. It will store up to 3,500 sets of readings or transfer data via Bluetooth or USB, to ElcoMaster for PC or mobile devices or a customer's own inspection app, for instant report generation. It can be used in both the field and the laboratory.

For users who use the more standard ISO 8502-6 test, Elcometer has developed its 135C Bresle Test Patches. These measure the level of soluble salts on uncoated surfaces.

Unlike traditional patches, Elcometer says, its 135C Bresle Test Patches are easy to peel off after testing, leaving no foam on the substrate, so there is no need to scrape or reblast the residue prior to coating. They feature 19 percent thicker foam walls than traditional patches, making it much easier to insert the needle.

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Reading list		
	Ferrous	Non-Ferrous All
12	2.660	mils Ferr
11	2.675	mils Ferr
10	2.645	mils Ferr
9	2.655	mils Ferr
8	2.655	mils Ferr
7	2.620	mils Ferr
6	2.640	mils Ferr
5	2.645	mils Ferr
4	2.640	mils Ferr
3	2.645	mils Ferr
2	2.660	mils Ferr
1	2.620	mils Ferr
X	2.6477 mils	↑ 2.675 mils
σ	0.0149 mils	↓ 2.620 mils
n	20	X



DeFelsko's new Bresle test unit, the PosiTector SST.

They offer a water-tight seal, thanks to a high quality adhesive. They are available in packs of 25 and 100.

DeFelsko recently launched its PosiTector SST for measuring concentrations of salts on metal surfaces. It features a conductivity probe specifically designed for the ISO 8502-6,9 test, and displays the test duration, sample temperature, conductivity ($\mu\text{S}/\text{cm}$) and surface density, either as mg/m^2 or as $\mu\text{g}/\text{cm}^2$.

It includes a simple step-by-step guide through the Bresle testing process. It offers automatic storage of a background (i.e., blank) measurement, which the company says is useful when conducting multiple tests.

This unit offers a selection of kits to retrieve and analyse soluble salts on surfaces. It is also adjustable for various patch volumes.

ElektroPhysik's MiniTest 700 series of coating thickness gauges are one of the

company's recent additions to its product line. They feature sensor-integrated digital signal processing (SIDSP) of measurement values, and all sensors can be connected without cables to the MiniTest 745 device.

The device is available in three versions. The MiniTest 725 has an integrated sensor, and the MiniTest 735 feature a sensor connected by cable to the measuring device. The MiniTest 745 can be optionally plugged into the device (equivalent to an integrated sensor), be connected by cable to the device, or connected wireless via Bluetooth.

Another series, the MiniTest 700 devices, facilitate non-destructive coating measurement of non-magnetic coatings (paint, synthetic material, chromium etc.) on ferromagnetic substrates (steel) and of insulating coatings (varnish, enamel, synthetic material, anodising aluminium etc.) on conductive substrates (aluminium, copper,

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Gardco's Profometer performs corrosion analysis.



austenitic stainless steel).

Neil Howard, technical sales specialist at Folio Instruments, says BYK Gardner has just released all new models of its gloss meters. These include single angle models and Tri Gloss models including newer models for the gloss meters, with the added capabilities of measuring paint thickness on ferrous and non-ferrous substrates.

"Some of the new enhancements in

these models include color display," he says, "which makes a huge improvement for the end-user, as the older monochromatic displays were always hard to read in some of the manufacturing facilities, even with a backlight turned on." BYK Gardner has also revamped its software.

For customers looking to measure gloss on small surfaces, he says, BYK Gardner has its new micro-gloss XS. This model is a 60-degree gloss meter, but has a 2x4mm measuring area.

A new product line for Folio is the Rhopoint IQ series of gloss meters, from Konica Minolta. "Aside from measuring gloss," Howard sales, "these meters are capable of examining Reflectance Haze, an optical effect caused by microscopic textures or residue on a surface, and Distinctness of Image (DOI), a measure of how clearly a reflected image will appear in a reflective surface. They will also Reflected Image Quality (RIQ),

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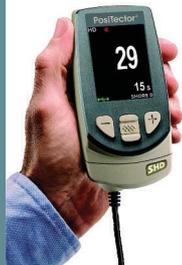
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Elcometer's 130 SSP tester with accessories.

which is essentially the same as DOI but is used to detect orange-peel effects.”

Proceq's Profometer Corrosion, offered through Paul N. Gardner Co., is claimed to be the most versatile corrosion analysis solution in the market based on the half-cell method. It uses Proceq's unique wheel electrodes, which allow rapid, efficient on-site testing.

The unit's dual-core processor permits fast data acquisition and real time control over the measurement procedure. Its rugged housing is specially developed for testing in harsh environments.

The high resolution, illustrative Profometer touchscreen facilitates high productivity with 2D grid views, an assisted workflow, and on-site post processing of the measured data. Together with the included PC software it allows, the company says, the best possible analysis of the statistical data with efficient custom reporting.

Features include an intuitive, user-friendly interface for data acquisition, optimized workflow for rod and wheel measurements, and customizable text that can be entered for any specific location.

Flexible features enable the mapping of any irregular geometry, and

improved digital filtering can remove the effect of external noise, such as civil and industrial power sources. The Profometer Link PC software enables data

analysis, combined data evaluation and reporting on any third party software, and can create custom reports with exported graphs and charts.

The housing is designed to be used on-site in harsh environments, and includes a carrying strap, integrated stand and sunshield cover. There is a high resolution color display, a battery life of eight hours, and an eight GB flash memory.

A dual core processor supports diverse communication and peripheral interfaces. Also, the unit is designed for future investment, via direct upgrade possibilities with upcoming Profometer products.

Instrumentation continues to be a source of creative innovation. Using it can sometimes require a cultural shift in plants that have traditionally made do with experience and guesswork, but there is always a payoff to be had. And an increasing number of coating operations is discovering this every year. ■

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plating and anodizing: **NICKEL PLATING**

The Enduring Appeal of Nickel



Nickel plating is one of the oldest processes in the metal coater's handbook. It has been commercial since the 1840s, yet it continues to be a significant market segment in metals processing.

The non-electrical form of the process is technically described as "an auto-catalytic chemical technique used to deposit a layer of nickel-phosphorus or nickel-boron alloy on a solid workpiece." Phosphorus is more common, and its content in the alloy, as any plater knows, is the determining factor in the eventual properties.

Nickel will produce an even deposit on a workpiece, regardless of the geometry. If the right pre-plate catalyst is used, it will also deposit onto non-conductive surfaces. Its ability to protect against corrosion or, in the case of plastics, against abrasion that in time produces a dull or scratched surface, is nickel's chief technical selling point.

Electroplating, properly called electrodeposition, is comparable to a galvanic cell acting in reverse. The part to be plated is the cathode of the circuit. The process, being more gradual and more subject to control, results in a finer, shinier metal surface.

Mature market segments like nickel plating rarely show major growth spurts. Generally, growth in the field tracks general growth (or shrinkage) in GDP. North American growth for the process has been solid in recent years.

"As production shifted from one region to another in the past, there was a negative growth rate," notes Jeff Brassard, general manager of Palm Commodities International, LLC. "The movement from North America to China

was around three to four percent annually, compounded.

“Recently, that negative growth has stabilized. Most production that was going to go, has gone, and so what has remained in the US, Canada has remained with production in Mexico growing strongly in recent years. And I think what we are seeing for the first time is the return of some of the work that went to Asia, first to Taiwan, then to the People’s Republic.”

Various commentators have offered different opinions on why this happened. One factor, small but still present, has been increasing resentment toward off-shoring companies, combined with a search for reasons to re-shore the work.

A more practical one has been inconsistency in the quality of work. This, combined with the distances involved and the practical impossibility of returning unsatisfactory parts, has made some North American customers more cautious about importing components across the Pacific.

In a number of cases, this has been to the benefit of Mexico, which can offer low labor and processing costs as well as proximity to US markets. But at the very least, the situation in Canada and the US has stabilized, and possibly begun to reverse itself slightly.

Another influence on the market is the cost of the metal itself. In 2009, nickel hit \$25 per pound, an almost unheard of amount.

“That was five to ten times the historical average,” Brassard points out. “Currently it’s in the \$4 to \$5 range. In the last nine to ten months it has months it has crept up.”

That said, the majority of nickel mining companies are still losing money, especially the smaller refiners and producers. Brassard estimates 70 percent of nickel mining firms are losing money, mostly the smaller refiners and producers.

“This might not be a huge problem for some,” he says. “Nickel can a by-product from the platinum-group metals they also extract from their mines. Nickel can be an extra income stream for them.”

Around 60 percent of the electroplated parts that are made still go into the cars we drive. The second biggest segment is home hardware of various types, which comprises 10 to 15 percent. Beyond this, Brassard says, there are appliances and white goods, and the other myriad products requiring

protective or decorative plating.

Among the alloy suppliers, Atotech offers a broad portfolio of nickel alloys for different types of plating. Its Tridur DB is the newest member of the Tridur family of materials.

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and acid zinc nickel surfaces. Suitable for rack and barrel applications, Tridur DB produces, the company says, an even, attractive deep blue finish, even on complex-shaped parts.

The material has a wide working window for blue appearance and, Atotech says, an outstanding corrosion performance, which makes it a perfect alternative to standard thick-film passivates. Up to 1,000 hours against white corrosion are achievable, without the need for applying a sealer. When used with a sealer it provides still higher corrosion resistance results, while giving a stainless steel appearance on acidic zinc nickel electroplated surfaces.

Another benefit of Tridur DB is its longevity. Due to a high pH (4.0 – 4.5), the metal dissolution rate is reduced considerably during passivation. Optionally, a cobalt-free version of Tridur DB with the same features in terms of corrosion protection and deep blue appearance is available.

Among its plating processes, the company also offers electrolysis for electroless nickel plating, which it markets under the acronym EDEN. This allows continuous purification of an electroless nickel bath by removing by-products. In this way, EDEN maintains the concentration of all process ingredients within a defined range, and guarantees constant deposit quality, over a potentially unlimited bath life.

MacDermid Enthone's Industrial Solutions division also has an extensive portfolio of nickel alloys. Its Niklad 767, which the company says is its most robust and widely used system, is a very bright and consistent high speed bath

Photo: www.sharrettsplating.com



for general applications with high or low loading. It contains five to six percent phosphorus.

NiKlad 767 can be worked without ammonia. Used as an electroless plating bath it provides both high hardness and wear resistance with a moderately corrosion resistant coating.

Another alloy in the same product series, Niklad 1000, offers the highest phosphorus content of all EN solutions, the company says, at 10 to 13 percent. It is used in an electroless nickel-phosphorus process specifically designed to provide maximum corrosion protection to a variety of properly prepared substrates, even at low deposit thickness. This high degree of protection extends part life in hostile environments, such as those found in the petrochemical, mining, and food handling equipment industries.

Another high-phosphorus product from the company is Vand-Aloy 4200. This is described as a stable, simple-to-operate, electroless nickel system. The process is used to deposit a smooth, bright high phosphorus coating on a variety of substrates.

The deposit contains 10 to 12 percent phosphorus, which provides good corrosion protection in many harsh environments. Vand-Aloy 4200 is designed to provide a long service life and a high rate of deposition. The process has a wide operating window and is particularly suited for high production facilities/job shops, where maximum economy of operation is required.

Reinventing the nickel plating process with new technology is not going to happen. However, incremental improvements are going to continue for many years to come.

As metallurgists keep on learning more about the micro-behavior of their

metals, and the effects of changes to micro-domains within their matrix, the predictability and consistency of plating can only improve. The people who began doing it 170 years ago would be proud of how their first efforts eventually turned out. ■

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Precious metals plating is an area of the finishing business that's easily overlooked. It's an area for specialist companies, and it uses a process, or set of processes, that find their way into some unexpected niches.

"It's been said that you're probably never more than 10 feet away from gold," says Tony Luccaro, President of Precious Metal Sales, Inc. (Watertown, CT). "Every automobile today has around seven computers that probably use it, as do cellphones, and it's used a lot for medical devices such as defibrillators and heart monitors."

Gold isn't the only precious metal used for plating and finishing, of course, but it is one of the most prevalent. It is non-corrosive, being unaffected by most acids and also most alkalis and it is highly reflective. There is no exact substitute for gold.

"There's not a lot of rhodium used in industry, though it's used extensively for jewelry," Luccaro says. "It can pro-

vide a very hard surface."

Rhodium's highest percentage use is in three-way catalytic converters for automotive exhaust systems. Occasionally, it has sold for several times the price of gold, hence the lack of general industrial applications. However, its price is among the most volatile of the precious metals.

Palladium has also always been an alternative for gold, helped by the fact it's half the price. Palladium, though, has different properties and characteristics.

"Sometimes you can use it," Luccaro says, "but gold has more useful properties overall."

"We lost a lot of the precious metals business to the Far East in the post-2009 recession," says David Farnum, director of sales with Advanced Chemical Co. "That has been slowing coming back."

Advanced Chemical claims to be North America's largest refiner of precious metal-bearing hazardous waste. Its Gold Stripper II product can strip gold

from base metals at room temperature, and for companies wary of performing the process on their own, Advanced Chemical will perform the reclaiming at its own Rhode Island facility.

While cellphones and other personal semiconductor-based devices have used gold for critical components for many years, the medical devices field is one of the growing areas. The need for absolute precision and durability in these is paramount, and there are new types constantly coming onto the market.

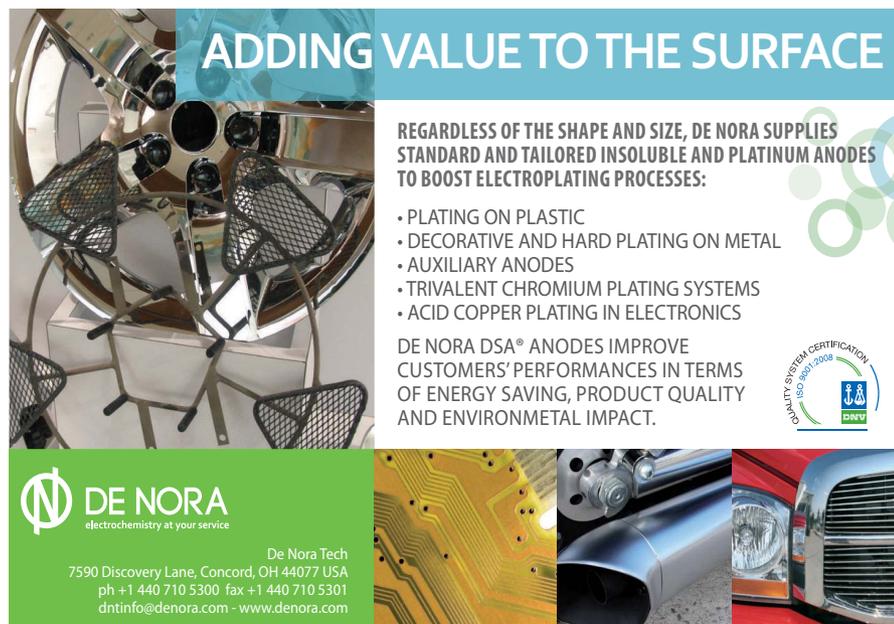
Space exploration is still a very small market niche, but a renewal of interest in this field has come with the growth of private companies looking at heading out beyond Earth's atmosphere. Gold application technologies here are stretching the possibilities.

Epner Technology's proprietary 24 karat gold process, Laser Gold, features a Knoop hardness of almost 200, making it three times harder than any other pure gold plating process. It also, according to sales engineer Thomas Lippens, achieves the theoretical IR reflectivity and ultra-low emissivity of a pure gold.

"It's specified by NASA for thermal control of instruments," he says, "and it's been used aboard virtually every spacecraft from the earliest GOES weather satellites to the infrared cameras on the Hubble and the James Webb Space Telescope."

A less critical application for the process, though a higher profile one, was coating the 2016 statues given out at the Oscars. The Academy for Motion Picture Arts and Sciences, concerned about a problem with the statues, combed the NASA database of suppliers, and found Epner

"We plate on different substrates," Lippens says, "including Albemet and



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“You’re probably never more than 10 feet away from gold.”

pure beryllium. We can plate a nonconductive, nonmetallic substrate.”

Albemmet combines aluminum and beryllium, and is used primarily in aerospace applications where weight is a factor.

The Laser Gold process, which uses heat but not actual lasers, derives its properties from the deposition, which can vary according to the type of bath and/or etches used. A more typical recent application than award statues has been gas sensors, since gold’s chemical inertness suits it well to such purposes.

Gold also finds its way into infra-red heater units. It does not have the durability of ceramic coatings, but reflectivity is far higher.

The principal problem area, according to Anderson Thermal Devices (Hawthorne, NJ), is in gold’s tendency to dissipate over time under such repeated exposure to IR, unless it’s exposed to an air cooling system. Ceramic coatings are usually applied at temperatures over 1200 deg. C, while gold’s melting temperature is 1064 deg. C. The gold won’t actually melt in IR heating applications, but it is affected at lower temperatures than ceramics would be.

However, there is still the fact that gold’s reflectivity makes a positive contribution.

Silver, while it currently trades at under US\$20, is also considered a precious metal. Its key selling point in metals finishing is conductivity. It is more conductive than ferrous materials, because of its density and pliability, and it can be drawn out into a very thin wire, which cuts the cost of using it compared to steel or other ferrous materials.

It is therefore used for non-corroding electrical switches, and such items as silver contacts in switches and circuit-breakers. Silver contacts in membrane switch panels are standard in such applications as control panels for machinery, chemical industry processes, railway traffic controls and elevator buttons.

Apart from jewelry, the applications for precious metals are rarely obvious. And, because of their cost, they are used sparingly, and in generally invisible places.

However, the ever-evolving demands of today’s electronics industry, and the increasing numbers of devices that did not even exist a decade ago, means that gold, silver and the other rare and costly metals are going to see increasing demand. Anyone venturing into the field needs to understand the requirements and the risks, not least of which being that spoiled parts are a lot more costly than other metal components. But the market opportunities are only going to increase over time. ■

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Coatings for the Great Outdoors

When it comes to off-road and agricultural coatings, the requirements get a little strange. Predicting exactly what effects a coating will undergo means thinking outside the usual boxes, since it can include not just knocks and scrapes, but exposure to extreme weather, the effects of high-acid or high-alkali fruits and plants, and contact with various agri-chemicals.

Coatings producer Axalta has expanded its offering for this field with two acquisitions this year. First it announced it was buying Dura Coat Products, a 30-year old producer of coat-

ings for the metal coil and aluminum extrusion markets. It also supplies building construction and general industrial applications, out of its Durapon, Ceranamel and XT series of coatings.

Secondly, it acquired the automotive interior rigid thermoplastics coatings business of Michigan-based United Paint and Chemical Corp.

“United Paint’s interior rigid thermoplastics coating technology is a great fit for Axalta as we fulfill our commitment to provide our customers in the global vehicle manufacturing industry with a complete range of coating systems,”

said Steven R. Markevich, Axalta executive vice-president and president of Transportation Coatings and Greater China. “Vehicle interiors are a logical extension of the expertise we have developed to serve the growing automotive plastic components market as traditional materials are replaced by lightweight alternatives. Vehicle manufacturers will benefit by being able now to rely on Axalta as a single source supplier of coatings for vehicle interiors as well as exterior surfaces.

Kyle O’Donnell, Axalta’s sales manager for Canada, says the company’s recent

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product developments include Tufcote Plus 2K urethane top-coat. This has been designed to reach up to 4,800 hours of xenon durability with gloss retention of up to 90 percent.

“Our Alesta powder coatings for the ACE market,” he adds, “offer increased corrosion protection on sharp edges and are formulated to meet cycle corrosion specifications of 40 cycles.”

To address emerging market demands, the company recently launched AquaEC 6100 e-coat, which is designed for improved corrosion resistance and higher throwpower. This tin-free environmentally responsible e-coat is formulated to offer lower cure temperatures for energy savings, compatibility with ‘green’ pre-treatments and is designed to have a higher efficiency to reduce wear on anodes.

“Predicting exactly what effects a coating will undergo means thinking outside the usual boxes.”

“We are also working on next generation liquid primers for enhanced corrosion protection,” O’Donnell says. “In regards to powder, we are working on a dry-on-dry application to increase productivity and corrosion protection.”

At this point, he adds, the company finds no specific limitations in use of color with its liquid or powder topcoats, so that it can offer a broad color palette to meet standard corporate color schemes, or special requirements.

Dow Chemical’s primary product line for this field is its range of Paraloid thermoset resins. The company uses a unique polymerization process for the manufacturing of solid grade resins.

Unlike suspension polymerization processes used by other manufacturers, the Dow solution/extrusion process is surfactant-free. The result is a range of resins that are less water sensitive than many competitive products, offering exceptional wet film and resistance properties.

Paraloid Edge ISO-free technology, which is explicitly for

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heavy-duty outdoor applications, can be used in direct-to-metal formulations or in pigmented topcoats over primer for agriculture, construction and earth moving equipment. The benefits for the original equipment manufacturer, the company says, include less material waste, faster throughput and lower temperature cure.

AkzoNobel's equivalent range is its Interpon ACE (for Agricultural and Construction Equipment) product range. This, the company says, provides a multi-durable, high performance coating for agricultural and farm machinery, construction, road building, earth moving, mining and materials handling equipment.

These powder coatings are formulated to offer tight color and gloss control. They also provide mandrel bend impact resistance, and will resist attack from common chemical agents. This includes unleaded gasoline, diesel fuel, lubricant oil, hydraulic fluids, and many alkaline and acid solutions.

The Interpon ACE range offer three topcoat performance classes – 500, 1000, and 2000 – as well as two primer qualities, and a special high temperature-resistant topcoat. There is also a range of levels of durability available.

The three topcoats differ in their weathering resistance capabilities. offers enhanced durability with Florida exposure performance in excess of 24 months (\geq 65 percent gloss retention at 60 deg. F). offers standard durability with Florida exposure performance in excess of 12 months (\geq 50 percent gloss retention at 60 deg. F). And is suitable for applications where there is a standard UV resistance requirement.

Tiger Drylac offers a range of polyester-based powder coatings that it recommends for aluminum substrates. For steel parts threatened by corrosion, a Tiger Shield two-coat system is recommended, the system comprising a corrosion-protecting powder primer and a Tiger Drylac polyester powder top coat.

The application of fillers for the removal of substrate defects is not generally needed with these powder coatings. Due to the high coating thickness achieved compared to liquid top coats, the company says, coverage is significantly better without the fillers. Optimal quality characteristics, in particular high mechanical resistance and excellent edge protection, can be realized by applying even a single-coat system.

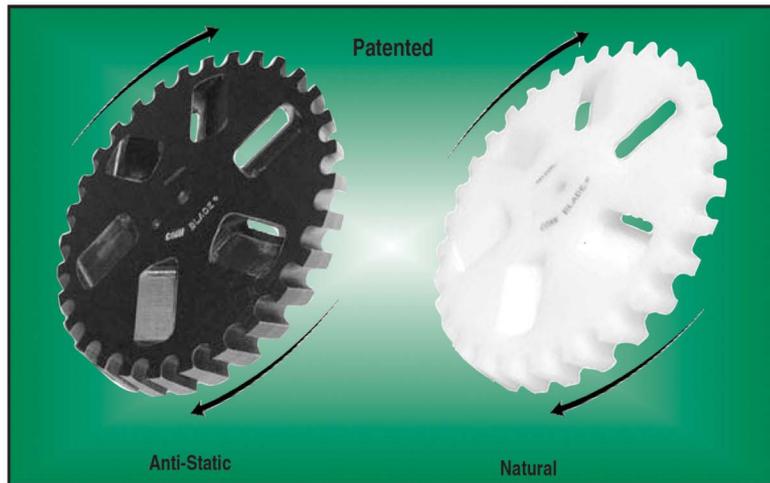
Coatings for these kinds of applications are not going to be cheap compared to those for regular vehicles. But it is possible today to ensure a much longer life for hard-working, off-road vehicles, and that is sure to keep improving in years to come. ■

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3



The Expanding Realm of Powder Coating

Resins for powder coating have been improving steadily since the first experimental efforts turned into commercial products, several decades ago. There are still a few basic limitations to powder coating technology, but the finish quality and durability, along with the colorability, keep on improving.

The primary materials used in today's powder coating processes are polyester-TGIC, polyester-HAA and polyurethanes. Acrylics and fluoropolymers can offer super-durable coatings that last five to 10 years. Fluoropolymers especially last significant amounts of time, but they are

not good with colorants.

In fact, color is often a problem with most of the high-end resins, and less durable resins are easier to color. Also, standard grade organic pigments tend to fade after 18 to 24 months of UV exposure, so colorants need to be selected carefully.

A recent introduction from Erie Powder Coating is its latest generation zinc rich primer. As with all zinc rich primers, this product has been designed to maximize corrosion control, but the company says it is easier to use than competitive primers.

The zinc acts as a sacrificial metal matrix that significantly slows rusting or oxidation of the steel substrate. Products with a low level of zinc do not, therefore, work especially well. The most persistent problem, however, has been topcoat adhesion to the primer.

The primer adheres well to the metal, and can give good corrosion protection to the steel. But the topcoat is usually essential, both for the look of the product and also for the weatherability.

The topcoat is often an exterior durable polyester, and this is essential to the overall durability of the coated sys-

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Powder coating on the front assembly of the Rubicon Jeep.

nificantly extended, EPC says. This makes the coater's work much easier, or in some cases actually makes the process possible where before it was literally impossible. And the Z1000-G5 could be easily topcoated with a second coat even with a 30-minute bake on the base primer prior to second coat.

TCI Powder Coatings has recently found good success with a powder coating it developed as a custom project for Chrysler's Jeep brand. For Jeep's 75th anniversary, the 2016 model year, the company rolled out anniversary special editions of several vehicles in its Wrangler Unlimited fleet, including distinct vehicle colors and trim packages.

Flex-N-Gate, a manufacturer of large stamped metal and welded components, is a Tier 1 supplier for the automotive industry and provides the

tem. If the topcoat peels from the primer, the result is ugly.

EPC's Z1000-G5 second generation zinc primer, the company says, has resolved these issues. It ensures the product has above 60 percent zinc, to ensure it gives long term corrosion stability.

The company says its lab has worked on the top-coat adhesion problem for years. Its solution was to change the formulation to keep the corrosion control, while making it much easier to top-coat.

The window for recoat has been sig-



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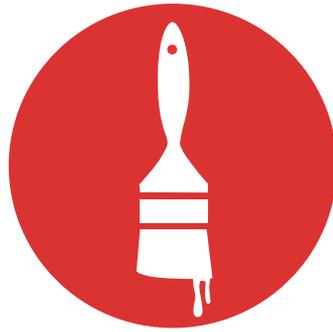
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More Rubicon Jeep parts using TCI's special powder formulation.

and received such positive feedback that Chrysler's styling team expanded the use of the color to the tow hitch in the trim package. The metallic bumper also captured the attention of the broader Chrysler styling team and was ultimately extended as an option for the higher-end Jeep Sahara and Wrangler anniversary edition models.

The recommendation from TCI was for a powder coating to hide imperfections in the galvanized metal and to fill in the impact lines designed into the bumper to withstand the impact forces during off-roading. The durable powder provides a smooth finish that is also tough enough to withstand severe impacts.

Chrysler wanted a smooth semi-gloss

bumper used on the Rubicon Jeep in conjunction with Powder Cote II, a powder coating finisher that applies the bumper coating.

TCI collaborated with Chrysler to

develop a coating that would meet manufacturing process demands of Flex-N-Gate and Powder Cote II as well as the styling expectations. The metallic coating they created was so successful



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bronze finish for its bumpers to match the rest of the trim package for special edition Jeep vehicles, which included the bronze wheel trim, bumpers, tow hitch, componentry and pin-stripping. Its styling team was very pleased with how well the new color matched the flat smooth standard, and approved it for use on bumper for the 75th Anniversary Edition Rubicon. In fact, they were so pleased that they expanded the use of the new approved color to the tow hitch in the trim package. The textured, Smoke Bronze metallic bumper also captured the attention of the broader Chrysler styling team and was ultimately extended as an option for the higher-end Jeep Sahara and Wrangler anniversary edition models.

TCI initially formulated the bronze finish color Chrysler was looking for in the bumper coating and in partnership with Flex-N-Gate and Powder Cote II, presented color panels to the Chrysler styling team. Feedback was very positive, but TCI Coating's manufacturing representative Paul Spencer and Flex-N-Gate shared some application concerns. The smooth coating would not provide the same hiding capabilities for metal defects and impact lines as the current textured black coating used on Jeep bumpers. The time to assess another solution was in this early phase before production began.

After review, a team of chemists began formulation of a textured Smoke Bronze metallic coating that would match the rest of the componentry. Matching between a smooth, solid finish coating and textured metallic coating is complex, since the mica flakes used in a metallic coating along with the textured finish create a multi-dimensional effect on the coating.

When the first color samples of the textured Smoke Bronze metallic powder coating were presented, the Chrysler styling team immediately liked it and asked TCI to continue fine-tuning the color to have a slightly less red hue. Several rounds of color formulation adjustments and reviews were done over a period of months and as the

project progressed, the TCI and Flex-N-Gate team moved from showing samples of flat color panels to painted bumpers. This allowed the Chrysler team to complete more detailed studies of how the coating would work with the other bronze trim componentry.

Not all projects involving powder will entail this level of fine tuning. But it is an indication of how powder coating technology has moved far enough that developing specific textures and colors, and to a first-rate appearance level, has become practical today. ■

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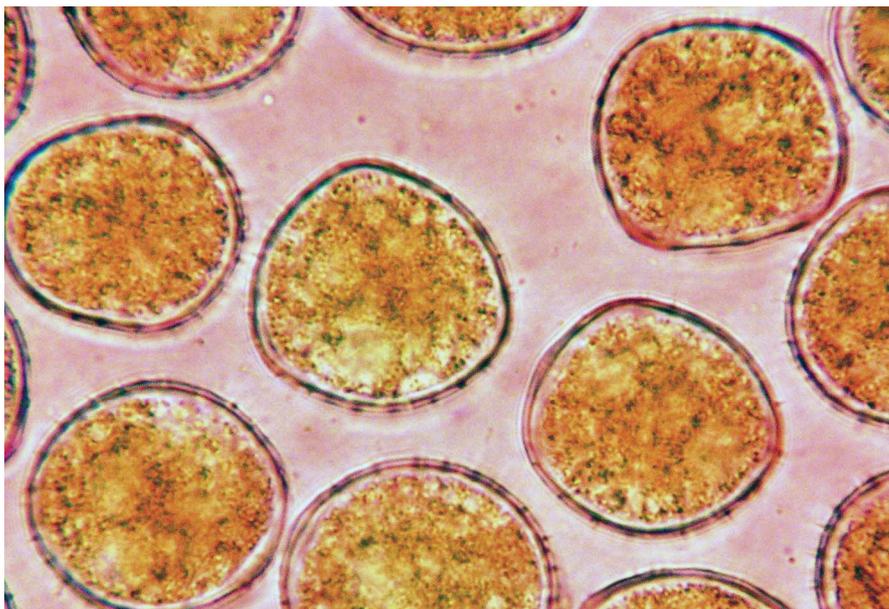
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Striking the **Right Balance**

Use of biocides and algaecides in paints and coatings is an important but complex topic. Regulators are always looking to reduce toxic compounds, while these substances are explicitly designed to be toxic within a specified range of operations. The art, always, lies in determining the fine line between effectiveness and causing allergenic or more harmful effects in use.

One challenge in the field is that relatively few biocidal chemistries are commercially available. Secondly, they have to be tested in exterior situations, and what meets the requirements for a

Micro-fungi can look attractive under the microscope, but their effects can be severe



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mild but damp climate might respond adversely in a drier but colder area. Suppliers have to be aware of multiple amounts of test data, as a result.

There is a further wrinkle in that the substances used need to be soluble in water for most modern paints. For exterior coatings, the longevity of a biocide in them will usually be related to the water solubility.

One recent offering in the field is Lonza's Dantogard formula, distributed in this country by Chemroy Canada. This is a low-formaldehyde bactericide that is composed of dimethylol dimethyl hydantoin (DMDMH). It has PMRA approved registrations for decorative coatings, polymer emulsion and a range of applications outside the coatings field.

Its advantages, Chemroy says, include broad spectrum activity over a wide pH range, worldwide regulatory support, and a strong safety profile. It is offered in powder and liquid form, and enhanced antifungal versions are available, using iodopropynyl butylcarbamate (IPBC).

"The three most common forms of Dantogard," Chemroy states, "are Dantogard Preservative, which offers a 40 percent solution of hydantoins in water; Dantogard XL-1000 Powder (DMDMH), and Dantogard Plus Powder, with DMDMH and IPBC."

In addition, Chemroy is distributing Dowicil QK-20 (2-dibromo-3 nitrilopropionamide, or DBNPA). This is a fast-acting biocide that will kill bacteria, fungi and algae, and its non-toxic end-products are organic acids, carbon-dioxide, ammonia and bromide ions.

"This is a short-term problem solver," Chemroy states, "not a long-term preservative. It does not function as an oxidizing biocide; does not form Br₂; does not form hypobromous acid (HOBr); and it is incompatible with strong reducing agents and thiones."

It does not release formaldehyde, and DBNPA is classified as readily biodegradable, breaking down in soil in a period ranging from minutes to hours. This is important since, as Chemroy notes, greener chemistries are a critical require-

ment today.

"Customers also look for low VOCs, broad spectrum effectiveness, and product combinations of two or more biocides to provide a specific biocide package tailored by end use and specific customer product," the company states. "They also look for services supplied by

distributors and suppliers, such as plant audits and challenge testing."

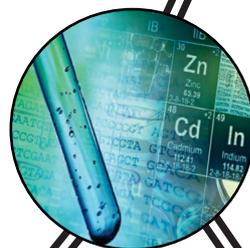
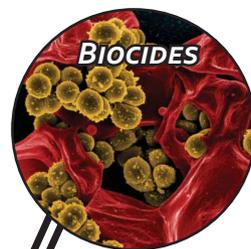
Creating broader customer awareness of new products is one of the challenges for the supplier community. Chemroy adds that while most user companies are aware of Incan and dry film biocides for the coatings and construction industries,

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there is less awareness of DBNPA (QK-20) chemistry in wash-water, for treating microbiologically susceptible raw materials, and for post and pre-treatment. Such usage offers a cost effective 'insurance policy' to help ensure product integrity in the field.

Buckman Canada Ltd. offers a range of its Busan products for the protection of hardwood and softwood timber, logs, poles, posts, agricultural, landscape, and construction lumber. Commonly, the company says, deterioration of wood can be attributed to mold, sapstain or blue stain, and wood-destroying fungi, and these are therefore the primary targets for Busan biocides.

With sufficient moisture, fungal spores that land on wooden surfaces germinate rapidly. The darkly pigmented spores and mycelia produce a discoloration of the surface that appear as an unsightly, uneven weathering. Sapstain

“Customers look for low VOCs, broad spectrum effectiveness, and product combinations of two or more biocides to provide a specific biocide package.”

fungi are similar to molds in that they do not affect the strength of wood, but rather its appearance and permeability.

Troy Corp. is another significant player in the field. Its Mergal, Micropel and Polyphase product lines address a

variety of situations requiring antimicrobial treatments, for wood, plastics and other substrates.

Last year, Troy acquired a portfolio of dry-film and wet-state preservatives from Ashland Chemical that included the Fungitrol, Nuosept, Bacillat, Bakzid, Bodoxin, Cinon, Cleanguard, Ebotec, and Plastiguard lines. It is has now integrated these formulations into its product portfolio, and the company's product offering for this field currently runs to over 400 items.

Canada does face a disadvantage in that the scale of the market does not always justify putting a product through the governmental approvals process. However, there is clearly an established list of biocidal products today that meets nearly all regular market requirements. And in time, suppliers report, they hope to see more – and yet safer – products added to that list. ■

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November 2-3, 2016: RadTech Fall Meeting, Hilton Garden Inn, Austin Downtown/Convention Center, Austin, TX. www.radtech.org/more-calendar-of-events/item/40-radtech-fall-meeting

November 16-18, 2016: Fabtech 2016, Las Vegas Convention Center, Las Vegas, NV, www.fabtechexpo.com

March 20-22, 2017: CoatingsTech Conference, Westin Cleveland Downtown Hotel, Cleveland, OH. www.paint.org

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

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

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The New Normal for **Chemical Regulations in Canada**

BY GARY LEROUX

The biggest regulatory challenge over the past several years has been the federal government's Chemicals Management Plan (CMP) assessing the chemicals used in a company's products, in all chemical sectors. The amount of work needed to ensure the process of assessing those substances is difficult and time consuming. CPCA's regulatory work focuses on making the process as fair as possible and one that leads to the best outcomes for industry.

Industry's goal is to ensure that the key substances for the performance of a company's products are not designated as toxic or banned completely. Government's goal is to ensure industry manages the potential risks of its products more effectively. This often includes regulations, pollution prevention plans, codes of practice and other control measures. Industry, on the other hand, must insist that decisions are based on sound science, which is not always assured. Any decisions taken to manage chemical risk must not limit a company's ability to compete in a highly competitive global economy.

Currently, coatings manufacturers or importers of any of the 1,550 substances identified under CMP-3 for risk assessment over the next five years can benefit from early engagement with federal officials. That is what CPCA did successfully in the first two phases of CMP and will continue in this phase.

It may sound counterintuitive to help government early in the process, but it is helpful from a business operations perspective. It usually means better results as industry then has more time to provide proper data, rather than wait until the last minute. If industry fails to submit the data government requires for assessing substances, government will take the position that industry cannot provide it or does not understand the potential risk. As a result, industry could end up with decisions that are detrimental to its business in the long run.

As a stakeholder, there are multiple benefits to identifying chemical use early in the assessment process with respect to substances being targeted for assessment. Companies, and industry generally, have an increased ability to influence the assessment approach taken by the government.

For instance, government has indicated that it is moving away from the requirement for "mandatory" surveys, which trigger company-specific compliance activities that are very time consuming. Instead, it will maximize opportunities to engage with industry through sector approaches via associations and joint industry submissions, which is one of CPCA's strengths. Industry must ensure government assessors obtain

the information needed for effective assessment.

By reviewing the identified list of substances, member companies in the coatings industry can begin to develop an early strategy for engagement, whether as a direct company stakeholder or by working through CPCA. In some cases it can be both. In this way, the sector will gain a better understanding of the extent of the information required and then focus resources more effectively.

There are 405 substances of the 1,550 under review in CMP-3 that are used in coatings, representing 26 per cent of the total. This is a substantial number of substances to be assessed by the federal government for a possible ban or a risk management measure such as a regulation. Industry must be fully engaged over the next five years as governments in Canada and abroad escalate their assessment of substances used in thousands of coatings formulations.

Recently passed legislation in the United States to reform their toxics reduction legislation will also be assessing chemicals in commerce. As well, there are remaining GHS challenges vis-a-vis the US especially with respect to concentration ranges and CBI claims made by industry and how they are handled. Industry must transition to full GHS labels by June of 2017. There is still work to be done to ensure alignment between the two countries.

Decisions that are not aligned with other jurisdictions, such as the United States, can lead to negative decisions by the federal government with respect to substances used in thousands of products sold in Canada. The following negative impacts can result due to non-alignment:

- Trade disruptions and difficulties in the management of stocks for North American trade
- Abandonment of products with high penetration in the Canadian marketplace
- Reformulations required for products with the use of alternatives that are not always cost-effective or available in Canada
- Extensive testing, re-labelling and special precautions with respect to transportation of goods
- Unique Canadian restrictions of use and/or misalignment with US and international regulatory measures for substances
- Potential of creating a negative image for the industry generally with respect to substances used in product formulations

The Canadian coatings industry wants none of these neg-

ative impacts as they can drastically disrupt a company's business plans.

Following the U.S. EPA example with respect to scientific assessment of exempted substances, a number of companies, including CPCA, lobbied hard for—and obtained—the addition of 16 compounds to the VOC exemption list under Schedule 1 of the Canadian Environmental Protection Act (CEPA). This now provides greater flexibility to industry as they can use these compounds in their formulations to comply with VOC regulatory requirements, while maintaining the performance of their products. For example, propylene carbonate, dimethyl carbonate and AMP may be used as substitutes for other, more highly reactive compounds to meet the overall VOC concentration limits for automotive refinishing products and architectural coatings. These exempted substances will help achieve lower VOCs in industrial products.

The next round of federal VOC regulations is planned for completion by 2020, which means it will start very soon as there will be several years of consultation before the regulatory process is completed. The critical work must be done now. These regulations will target all chemicals and given that the level of VOC limits have already been greatly reduced for architectural and automotive coatings, the focus will also likely be on industrial coatings.

The coatings industry must focus on and prioritize the substances targeted in each segment of the coatings industry to determine the best way forward in negotiating new VOC limits for every category. This will be a challenge.

Both at Queen's Park and in Ottawa, there are now two very activist governments focused on the environmental agenda. This includes a Parliamentary Committee on the Environment and Sustainable Development now reviewing chemicals management with a view to strengthening the regulations under CEPA. Already the NGOs appearing before the Committee have advocated for amendments that could increase the number of banned substances; force industry to seek out alternatives before government considers approving new and existing substances, insisting that if companies have "no data" they will have "no market"; consider using the more costly European REACH approach for chemical assessment; and other substantial changes.

Essentially, the NGO community is arguing that the CMP process has failed and that a new approach must be based on hazard, not risk. Industry must get out ahead of it as much as it can to advocate for a balanced approach that takes into account all three pillars of sustainability. The economic pillar is falling behind, if not off the radar these days. If we do not get this right, industry will suffer the consequences of stiffer amendments to federal environmental legislation, and see further erosion of the manufacturing base in Canada. ■

Gary LeRoux is president and CEO of the Canadian Paint and Coatings Association, www.canpaint.com.

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CANADIAN FINISHING & COATINGS MANUFACTURING MAGAZINE

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Black Oxide Finishing System



Manufacturers contemplating taking black oxide finishing in-house are offered a low-cost entry option with the Birchwood Technologies BC40E TruTemp finishing system. The seven-tank process line, with full black oxide capabilities, comes complete with tank system, heaters, plumbing connections, tank lids, and chemical products.

The system is pre-engineered to set up quickly and operate safely. It utilizes seven individual tanks, each measuring 16 x 24 x 24 in. deep (ID), and occupies a footprint of just 3 x 13 ft. The tanks are rugged and virtually unbreakable, manufactured of heavy weight, high-density polypropylene and polyethylene.

These lines produce high quality black oxide finishes and can often be operated by workers in adjoining CNC, screw machine or parts washer cells, without adding new employees. The TruTemp process contains no EPA regulated chemicals, so there is no need for waste treatment. The rinse waters are generally sewerable as non-hazardous discharge.

www.birchwoodtechnologies.com

Paint Oven Temperature Logger

TQC has put its own experience and customer input into the design of the new CurveX temperature logger. An XL touchscreen allows the user to operate the logger but also evaluate test results right on site on the large color screen.

Useful information such as Cure index, maximum temperature and a complete graph are presented. Up to 10 batches can be stored and evaluated on the instrument without the necessity to download the data to a computer.

The touchscreen also allows the user to create and edit paint types, change logging intervals, program start/stop triggers, configure the memory, and perform other tasks.

A standard USB port is used to download data to a computer, to a USB-memory stick and also to charge the internal battery. To evaluate the data, each CurveX system is supplied with Ideal Finish Analysis, software that is developed and dedicated to QC processes in the coating industry.

A large range of innovative heat barriers protect the logger inside the oven at various levels. Temperature probes for surface- and air temperature complete the system.

www.tqc.eu



Anti-Corrosion Sealant for Aircraft

PPG has developed a new anti-corrosion material for use in aircraft, called PR-2870. This chrome-free material is part of the company's family of polythioether aerospace sealants.

Galvanic corrosion is a multi-billion dollar expense for the global aerospace industry, but soluble chromate materials are increasingly viewed as undesirable. The company says PR-2870 not only provides excellent corrosion inhibition, but reduces both weight and cure rates by up to 30 percent compared to traditional sealants. Lighter weight sealants offer critical fuel savings over the life of the aircraft, and this material is also fast-curing.

Corrosion Protection in a Can



Cortec's EcoAir VpCI-337 is a convenient way to get corrosion protection in an easy-to-use spray can powered by compressed air. On its own, VpCI-337 is a biodegradable waterborne vapor corrosion inhibitor used to protect metal parts and internal void spaces with a thin, environmentally friendly self-healing film. Vapor phase Corrosion Inhibitors (VpCIs) in the fluid migrate and protect metal surfaces, resulting in time and cost savings and using a minimum amount of product.

Using bag-on-valve technology, EcoAir cans are powered by compressed air and can be sprayed in any direction—even upside down—without any worries about releasing solvents, VOCs, or aerosols into the atmosphere. EcoAir VpCI-337 can be safely and easily transported for use even into remote areas without the need for electricity or special spray equipment.

When the can is empty, users can simply pop the top off, remove the inner bag, and throw the remaining aluminum can directly into the recycling, avoiding costly and inconvenient disposal procedures. In most cases, products protected by EcoAir VpCI-337 Fogger are ready-to-use—with no degreasing or stripping necessary. The metal will retain a clean, corrosion-free surface, and the thin protective film will not affect paintability, conductivity, appearance, or any other important property of metals or alloys.

www.cortecvci.com

UV LED Curing System

Excelitas Technologies Corp. has expanded its OmniCure product line with a higher power UV LED curing system for fiber optic coatings. The new OmniCure AC 8225-F+ features a custom optical design that provides outstanding optical performance over longer working distances, a typical requirement for fiber coating processes.

With high peak irradiance and efficiency, the system supports increased line speeds and enables customers to realize cost savings from reduced electricity consumption. This compact, air-cooled UV LED curing system can be easily integrated into existing or new production lines, and is recommended for optical fiber coating or marking applications, as well as other applications such as display bonding.

The OmniCure AC8225-F+ provides peak irradiance of up to 16W/ sq cm at 10-15mm working distances, the company says, as well as superior uniformity for rapid, even curing with greatly reduced power consumption compared to traditional lamp solutions, or other LED products. It also includes an optional replaceable window for added protection, while supporting the ability to adjoin multiple UV LED systems without compromising on optical uniformity between each curing system.

"The foundation of Excelitas' product development initiatives is to provide OEMs with custom solutions for their specialized applications using the most outstanding, state-of-the-art technologies and performance characteristics possible," said Oliver Scheuss, vice-president of solid state lighting and UV/microscopy at Excelitas. "This new addition to the OmniCure line is the latest example of Excelitas' technological innovation. "The new OmniCure AC8225-F+ delivers higher irradiance and performance parameters to enhance fiber optic coating applications. As a result, users can significantly lower electrical and equipment maintenance costs while increasing production speeds."

www.excelitas.com

Device measures powder coatings

In 2015, TQC introduced the prototype of the PowderTAG at trade fairs around the world. After a year of many test runs and fine tuning the unit has finally been released. The instrument measures powder coating thickness up to 300 μ m, before and after cure.

It is a non-contact device, non-destructive, and usable on metal substrates such as steel or aluminum. Using a combination of infrared and photo thermal measurements, it produces precise and repeatable coating thickness measurements. Because its pulse does not

need to be perpendicular, and has a small measuring spot, the PowderTAG is suitable for

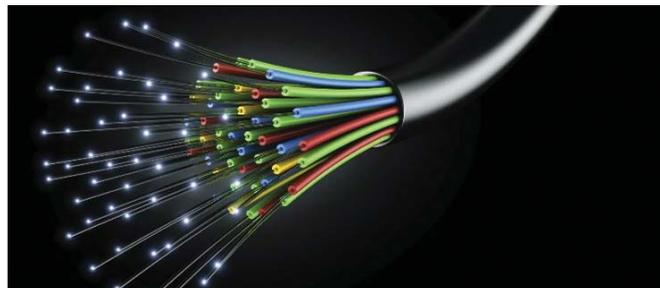
determining the layer thickness on small, curved or hard to reach objects, even on wire frames or small corners and edges.

A LED pointer assists in determining the correct distance and location. Because of the non-contact measuring principle, parts can be tested on a slow moving line without damaging the coating. For higher line speeds it is recommended to remove parts on the line via a bypass or stop the line.

www.tqc.eu



Acrylate Functional Silane



Gelest, Inc. has introduced its new SIVATE A200 activated acrylate functional silane for use as a primer for fiber optic cladding, a coupling agent for light-cure acrylic nanocomposites, or an adhesion promoter for high-speed UV acrylated urethane cure systems. This product is a proprietary combination of a cyclic azasilane with an acrylate functional silane that drives a thermodynamically-favored formation of silicon-oxygen bonds that is nearly 85 percent complete in less than 15 seconds.

The SIVATE A200 activated acrylate silane reacts with more than three times as many hydroxyl groups as conventional ethoxy silanes. Further, the company says, it has a reaction speed more than 100 times faster than conventional silanes, providing immediate adhesion.

Compared to conventional silanes, SIVATE A200 offers radcure in UV, EB and visible light, reacts at high speed and reacts with a greater variety of substrates. It does not require moisture to initiate surface reactivity, and inhibits moisture-initiated crack propagation on vitreous surfaces.

www.gelest.com

Improved Gloss Meter

The MicroGloss III Series gloss meter from Paul N. Gardner offers smart functions and intuitive menu operation with a new color display that simplifies gloss measurement. The company points out its performance in temperature control and inter-instrument agreement guarantee, which offer reliable quality control. In addition, the smart-chart software is the ideal tool for smart communication with professional documentation and efficient data analysis.

Ergonomics and easy handling are the main focus for the design. The scroll wheel operation and the new color display with its easy-to-navigate menu simplify gloss measurement.

The calibration standard is always protected in the holder of the micro-gloss. The intelligent auto diagnosis of the gloss meter guarantees long-term calibration stability and tells the user when to calibrate. It also checks whether the standard is clean.

With the MicroGloss gloss meter a user can measure paints, plastics or brightened metals. Its expanded range measures from very matte to mirror like reflection of up to 2000 gloss units, automatically and without additional calibration.

www.gardco.com





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