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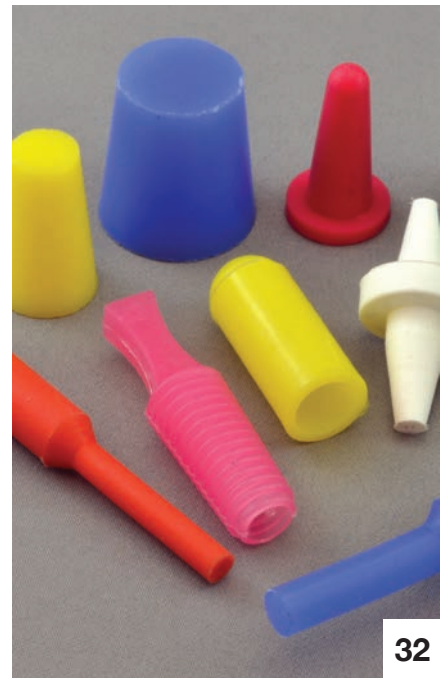
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New Trade Deal Still Producing Uncertainty

Since the negotiations have yet to be ratified by the national legislature of any of the three countries involved, nothing about The United-States-Mexico-Canada-Agreement (USMCA) is yet certain. The 34 chapters of the agreement make for heavy reading, and naturally, there are economic sectors in Canada that feel let down by the final deal. The coatings industry is not alone in having significant concerns.

Gary LeRoux, president and CEO of the Canadian Paint and Coatings Association, said in a statement: "While the industry is pleased that a new agreement has been signed providing more certainty for industry, however it does little for the continued challenges faced by manufacturers in Canada who still have misalignment with US regulations, an added regulatory burden preventing new investment, which a new NAFTA will not fix.

"There is still the challenge of getting it approved by Congress, which will likely be controlled by Democrats after the November mid-terms, so it may be delayed further or stopped altogether. If that is the case there will continue to be uncertainty for all manufacturers operating in Canada, both Canadian-owned and multi-national companies."

Despite the concluding of negotiations, the tariffs imposed on Canadian-made steel and aluminum remain in place. Obviously, it is contradictory to be implementing a deal that reduces barriers to trade while maintaining newly created ones, but that is where Canada finds itself.

USMCA is of course preferable to the uncertainty of a no-deal situation. It underlines the fact that the US and Canada are hugely dependent on each other for two-way market access, and that this should continue.

But there is still unfinished business around North American trade.

This will be my last editorial for CFCM. As you'll see from our People section, I'm stepping down as editor, and Theresa Rogers is coming in to replace me. She has a solid background in this business, and I think she can take the magazine to new heights.

I'm going to sticking around in the background, to help with the changeover, but otherwise I'm hanging up my laptop, and retiring. So, my thanks to all of you who've taken the time to help with articles and news items over the past three years, and educated me in the industry and its workings. I wish you all continued prosperity.

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AkzoNobel Completes Specialty Chemicals Sale

Global coatings manufacturer AkzoNobel has completed the sale of its Specialty Chemicals business to the Carlyle Group and Singapore's sovereign wealth fund GIC, concluding a process that has been ongoing since early 2017. The US\$12.5-billion deal has produced two focused businesses: AkzoNobel Paints and Coatings, and Specialty Chemicals, now owned by Carlyle and GIC.

In April 2017, AkzoNobel detailed that its plan was to sell or list Specialty Chemicals, accounting for about one-third of AkzoNobel's sales and profits, within the next year. The division was then valued at about \$9.9-billion.

The separation of the Specialty Chemicals business has been discussed for some time, but the formal announcement was seen as a response to rival PPG Industries' (Pittsburgh) repeated but rebuffed attempts at a takeover, which began in March 2017.

According to AkzoNobel, its Board of Management and the Supervisory Board concluded that a

private sale of the Specialty Chemicals business to Carlyle and GIC was in the best interests of the company and Specialty Chemicals itself, along with respective stakeholders.

AkzoNobel will be returning the majority of net proceeds from the sale of Specialty Chemicals to its shareholders, in compliance with the Extraordinary General Meeting held at the end of November 2017. Werner Fuhrmann, CEO of Specialty Chemicals, returned from retirement in August of that same year to help guide the business sale, and will now retire once more. Charles Shaver is to take his place.

Shaver stepped down as CEO of Axalta in early September, but kept his role as chairman of the board. Previously, Shaver served as chief executive officer and president of the TPC Group, his career also including a number of roles with General Chemical, Arch Chemicals and the Dow Chemical Co.

"I am delighted to assume my new role at



AkzoNobel global headquarters.

Specialty Chemicals and look forward to working with the management team, Carlyle and GIC to deliver long-term success," said Shaver.

"Specialty Chemicals has a strong global presence and a talented and dedicated team and I believe there is significant opportunity to drive additional growth through innovation and customer focus to build on the company's leading positions in its markets."



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SABIC Gains Share in Clariant

SABIC has received the final outstanding regulatory approvals from the competition authorities for the purchase of a 24.99 percent stake in Clariant. An unconditional closing in mid-September made SABIC Clariant's largest strategic anchor shareholder, and the second anchor shareholder beside the group of former shareholders of Süd-Chemie. SABIC, which claims to be the world's third largest diversified chemical company and a long-standing partner of Clariant in the Catalyst joint venture Scientific Design, entered into a purchase agreement regarding the acquisition of the stake in January 2018.

"With SABIC receiving all the regulatory approvals and the transaction set to be completed, we look forward to further developing the strategic relationship between both companies in order to generate value for all stakeholders", said Hariolf Kottmann, CEO of Clariant.

Clariant has announced an updated strategy following this move. It intends to divest its remaining plastics and coatings business by 2020. By 2021, the group aims to generate annual sales of around 9-billion Swiss francs



Hariolf Kottmann, Clariant's CEO.

(US\$9.36-billion), compared with 6.38-billion francs in 2017.

"The portfolio upgrade together with the continuation of Clariant's strategy enables the Group to realize a significant step change into higher value specialties, which will allow the Group to considerably augment value creation for all our stakeholders," added Kottmann.

Clariant also announced an Extraordinary General Meeting for October 16, to expand its board of directors to 12 members, four of them nominated by SABIC. The meeting will also name Kottmann chairman of the board while SABIC's current Specialties vice-president, Ernesto Occhiello, will be appointed the new CEO.

L.V. Lomas Now IMCD Canada

L. V. Lomas Ltd. has been renamed IMCD Canada Ltd. The company was bought by Netherlands-based IMCD N.V. in August 2017. L.V. Lomas Inc. (USA) was renamed IMCD US Food Inc.

Established in 1960, IMCD Canada has its head office in Toronto, and other offices in Montreal and Vancouver. It is one of North America's leading distributors of specialty chemicals, ingredients and raw materials. Its parent company manages sales, marketing and distribution of specialty chemicals and food ingredients on a global basis.

Marcus Jordan, president, IMCD Holdings US, commented, "L.V. Lomas has proven to be an excellent fit with IMCD's core values and business model, allowing for a smooth and successful integration. IMCD is committed to upholding the excellent reputation L.V. Lomas has established in the market, with a continual focus on technical expertise, delivering innovative solutions and creating value in all our customer and supplier partnerships. Utilizing the combined knowledge and long-standing experience of both companies, IMCD looks forward to further developing the

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business and establishing new opportunities for growth in Canada and the US.”

Globally, IMCD had revenues of €1,907-million in 2017. It has over 2,200 employees in more than 45 countries, on six continents.

Andicor Takes on Heuco Line

Andicor now represents Heubach and Heucotech products. It will represent the entire Heubach entire portfolio, the main product lines being Heucodur inorganic pigments, Monolite organic pigments, Aquis and Heucospere color preparations, and Heucophos anticorrosion pigments. www.andicor.com

Univar Purchases Nexeo Solutions

Global chemical and ingredient distributor Univar Inc. is buying Nexeo Solutions Inc., a global chemicals and plastics distributor. The companies have jointly announced entering into a definitive agreement for Univar to acquire Nexeo in a cash and stock transaction valued at approximately US \$2-billion, including the assumption of Nexeo's debt and other obligations, or \$11.65 per Nexeo share, subject to adjustment.

“This transformational combination is designed to create the premier global chemical and ingredients distributor, with exciting opportunities for our customers, suppliers, employees, and investors,” Univar president and CEO David Jukes said. “Together, we will drive growth and shareholder value with the largest North American sales force in chemical and ingredients distribution, the broadest product offering, and most efficient supply chain network in the industry. We expect the transaction to be accretive to earnings and cash flow beginning in the first full year post closing and to generate \$100-million of annual run rate cost savings by the third year following close and reduce annual capital expenditures by \$15-million immediately.

“By combining the best capabilities, talent, and resources from our two companies we will be even better equipped to deliver superior service and expanded value to our customers and supplier partners. We expect to leverage Univar's leading e-commerce and digital capabilities across Nexeo's financial systems and centralized ERP platform to accelerate the digital transformation already underway at Univar and reduce costs

while enhancing the ease of doing business.”

The transaction has been unanimously approved by the boards of directors of both companies and is anticipated to close in the first half of 2019, subject to the approval of both Univar and Nexeo shareholders, as well as receipt of regulatory approvals and satisfaction of other customary conditions. Nexeo's key stockholders, TPG and First Pacific, have agreed to provide consent for the proposed transaction.

Brenntag to Acquire Canada Colors and Chemicals

Chemicals distributor Brenntag has signed an agreement with Canada Colors and Chemicals Ltd. to acquire the company's chemicals distribution business. Headquartered in Toronto, CCC offers a full-line portfolio with operations in the main industrial areas across Canada.

Steven Holland, CEO with the Brenntag Group, said, “With the acquisition of CCC, Brenntag strengthens its focus and specialties capabilities in both Life Science and Material Science. CCC's broad positioning and extensive product and service portfolio perfectly comple-

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ment Brenntag's offer to our customers and suppliers."

CCC maintains well-invested, scalable and flexible facilities across Canada to store, blend and package industrial and specialty chemicals and products. Its Life Science offer includes a state-of-the-art ingredients application lab, several own formulations and

a highly qualified technical staff.

CCC's blending capabilities and formulation expertise in the oil and gas business opens interesting synergetic business opportunities with Brenntag Canada's own oil and gas operations, the company said. In addition, CCC's own truck fleet will extend Brenntag's value-added service offering.

Guy Carr-Harris, chairman and CEO of Canada Colors and Chemicals Ltd., commented, "The sale of our chemicals distribution business to Brenntag is an exciting opportunity for our employees and stakeholders to join forces with one of the world's leading international chemical distribution companies. The combination of Brenntag's global reach and our technical capabilities provide a compelling platform for our customers and suppliers."

The business generated total sales of approximately 140 million EUR in the financial year 2017. Closing of the transaction is expected this fall, subject to contractually agreed closing conditions.

DCC LANSCO Boosts Productivity

Over the last year, DCC LANSCO invested over \$13-million towards improved productivity within its manufacturing sites. This ranges from environmental initiatives and creating efficiencies in the chemical processing system, to developing technologically advanced products.

"We strive to continually invest in the future to allow our customers to succeed with reliable and consistent supply of high-quality, innovative products, while remaining environmentally responsible," says CEO Mark Vincent.

Since the initiation of these programs, he says, there have been drastic improvements to the environment, benefitting surrounding communities. Having invested heavily in technology and innovation, it has launched several products offering customers more value in use, expanded the color gamut, and more.

Some of the results include decreasing fuel requirements by 10 percent; reducing electricity consumption, and reducing steam requirements by 15 percent. Company air emissions are also down, heavy metal waste has been cut by 50 percent, and lead nitrates have been eliminated in the effluent treatment system. The company is using recycled bismuth and vanadium, and has cut the amounts of water filtered into municipal systems.

In terms of new products, DCC LANSCO has launched a Super Strong BV Line, which provides better value in use, less waste and decreased shipment costs. A further product in this line is expected to be even stronger, with a value in use about one-half the cost of existing equivalents.

There is also an alkali-stable BV (bismuth vanadate) line offering greater flexibility for concrete coatings, and a new orange pigment, DCC

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Orange ORS (PO.86). This is the first pigment in its class, and the company describes it as “the cleanest inorganic orange available.”

DCC LANSO, Vincent says, “will continue to invest in productivity and sustainability improvements to ensure a reliable, consistent supply to the market while minimizing our carbon footprint.”

Keystone Pipeline Moves Ahead

TransCanada, the firm pushing the planned Keystone XL oil pipeline from Alberta to Steele City, NB, is ready to move ahead with construction in 2019. The US State Department has released an environmental statement, compliant with a court order handed down in August, authorizing the controversial pipeline.

The 1900-km Keystone XL was first proposed by TransCanada in 2008 and was subject to years of reviews, protests and delays before the State Department under former President Barack Obama rejected the plan in late 2015 on the grounds it was not in the US’ national interest.

When the presidency changed hands, TransCanada was invited to re-apply for permission to

build the line. It did so, and quickly received permits.

The final state to approve the pipeline, Nebraska, did so in November 2017 on the condition that TransCanada build on the ‘Mainline Alternative’ route, which co-locates with existing rights-of-way for more miles than the company’s preferred route.

The 36-in. diameter pipe will carry crude from the oilfields of Alberta to Steele City, where it will move via other pipelines to terminals in the Midwest and Gulf Coast. According to TransCanada, water crossings along the line will be made via horizontal directional drilling in order to minimize environmental impact, and the pipe under rivers will be made of thicker steel and protected with abrasion-resistant coatings to reduce the risk of damage that could lead to an underwater release.

Environmental groups plan to continue to challenge the pipeline’s construction; the Sierra Club called the new environmental impact statement a “sham review” and its spokesperson Kelly Martin said its “fight will continue until Keystone XL is stopped once and for all.”

Cutting the Costs of Pollution Control

Nobody likes spending money on pollution control equipment. The perception is that it only adds to costs, not productivity, and there are few thanks for companies that install it.

“We make the equipment nobody wants to buy,” concedes Jim Kuzara, technical sales manager with Ship & Shore Environmental. “VOC abatement technology is our primary field of activity and it is a necessary requirement to do business in today’s environmentally sensitive economy.”

The company’s various thermal oxidizer designs do not only combust volatiles, but can also be used to create heat exchange, or even to generate steam. Kuzara remarks that this can cut a plant’s energy usage, defying the general assumption that there is no cost benefit from emission reduction.

“Our competitors have tended to be more transient than us,” he says. “We have been in the industry with this sort of technology for almost 20 years now. We’re not the largest manufacturer of

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this type of equipment, but we are in the middle of the field.”

One of the company’s strengths, he says, is being very process-oriented. Where other suppliers simply provide a standard thermal oxidizer system, Ship & Shore tries to understand the customer’s process before completing a sale.

One of the more common systems it builds is the Regenerative Thermal Oxidizer. In these systems, a fan supplies air from the process to the RTO. There are two heat exchanger beds in the system, with a burner and combination chamber between them.

“The RTO is ideal because it provides up to 99 percent destruction efficiency, but it’s also thermally efficient,” Kuzara says. “We can recover up to 97 percent of the energy in the system.”

In such a system, a fan pushes the air through an inlet manifold, which directs the air up into one of the two heat exchanger chambers, which have ceramic beds. The incoming air is pre-heated to between 900 and 1000 deg F prior to entering the combustion chamber (gas then heated up to 1500 deg F). Exhaust gas from the combustion chamber is then directed through a second ceramic heat exchange bed where heat is

stripped from the exhaust. The resulting clean process air is released to atmosphere as carbon-dioxide and water vapor.

As the initial ceramic heat exchanger starts to cool, the second ceramic heat exchanger gains heat. At this point in the process, the incoming process exhaust is reversed – process air directed to the second ceramic bed which is newly heated. The incoming stream is now pre-heated by the second bed, moves into the combustion chamber, and then to ceramic bed number 1 where heat is now stripped from the exhaust leg of the system and then to atmosphere.

“We reverse the chamber every two minutes or so to maintain this heat balance,” Kuzara explains. “This is all automatic, and can start and shut down at the end of the day automatically. It is well insulated to stay as efficient as possible, and for safety reasons.”

In an ideal world, the move to more water-based systems would have pushed solvent-based coatings out of the market. However, not every water-based formulation has worked as advertised, and solvents will still be widespread for the foreseeable future.

“At the end of the day there is often a require-

ment that you need this type of equipment,” he continues. “We might have to configure for a specific load of VOC. If there is enough solvent, perhaps three to four percent of the lower explosive limit air-stream, there is sufficient BTU value where you can basically turn off the gas, it becomes self-sufficient – little or no supplemental fuel is required.”

There are various units installed by Ship & Shore in Canada, Montreal and Vancouver being particularly strong markets. The printing industry is a good customer, and the coil coatings business can produce a lot of effluent when it uses organic coatings. In the liquid paint field, it’s also possible to re-use cleaned-up air from burn-off systems on large paint lines.

“Our biggest customer base is existing customers,” Kuzara says. “Sometimes, we deal our own used equipment, so we can offer a used system ASAP. We have chemical engineers on staff, and we have 24/7 response on equipment problems that can arise.

“As the sales person, it is my responsibility to present value added services to my customers. Whether that’s providing energy recovery, source ductwork collection systems, assisting with envi-

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ronmental permitting, or looking into rebate incentives. We want to be the company looking out for the customer.”

Evonik Adds Silica Capacity

Evonik Industries is expanding its capacity for refining fumed silica in Rheinfelden (Germany). The group will invest an amount in the low double-digit million euro range to expand the plant, which further processes hydrophilic silica to a hydrophobic variety. The expansion, scheduled to be operational in late 2020, is associated with Evonik’s effort to consistently expand its silica business for specialty applications.

“Our expansion in Rheinfelden is aimed at supporting the growth of existing application areas in highly specialized fields and at opening up new, innovative uses,” said Johannes Ohmer, member of the Board of Management of Evonik Resource Efficiency GmbH.

Hydrophobic fumed silica, which Evonik markets under the brand name Aerosil, offers low moisture absorption and excellent dispersibility. It is used for rheology control and as an anti-settling agent in coating systems, adhesive and

sealant materials and as a thickener and anti-caking agent, for example in silicone rubber, toners and cosmetics.

“Rheinfelden is the parent plant for our hydrophobic fumed silicas,” added Andreas Fischer, head of the Silica Business Line. “We decided in favor of expanding the site because the investment will help us make even better use of existing facilities. In addition, the local process know-how and specific long-term experience with the construction and operation of the plants were essential considerations for us.”

The investment will expand the company’s annual capacity for hydrophilic fumed silica at the existing Rheinfelden site by 20 percent.

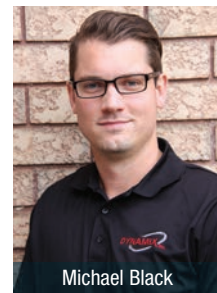
People

Dynamix Appoints Marketing Manager

Dynamix Inc. has appointed Michael Black as marketing manager. With an educational background in chemistry and prior work experience in the chemical distribution and manufacturing fields, Black will aim to metal finishing

chemistry that delivers a performance advantage to customers, while continuing to add value and play an integral part in their growth and success.

www.dynamix-inc.com



Michael Black

Kroller to Head ACTEGA Division of Altana

Thorsten Kroller, currently head of the Business Line Plastics Additives at the BYK Division of Altana, will assume the leadership of the ACTEGA Division as of March 1, 2019. He will succeed Dr. Roland Peter, who is going to retire. At the same time, Kroller will join Altana’s executive management team.

“Dr. Roland Peter looks back on a successful management career in our organization spanning over 20 years,” stated Altana CEO Martin Babilas. “After many years as the head of BYK, he has been driving the realignment of ACTEGA since 2012. We would like to take this opportunity to thank him for his contributions to Altana and

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CFCM Names New Editor

Canadian Finishing & Coatings

Manufacturing Magazine (CFCM) is pleased to announce that Theresa Rogers has joined the publication as Editor.

She will take over from Edward Mason, who has been at the helm of the magazine for three years, and will be retiring in November. He will, however continue with the magazine in an advisory capacity through 2019.

Rogers has a strong history of independent and association magazine publishing, having worked in the industry for more than 20 years. Her most recent position included a portfolio of eight magazines including one about wood architecture and structures that has direct relevance to a major segment of CFCM's mandate.

Rogers says she wants to utilize the established base upon which CFCM was built. However, with the world moving increasingly online, she also sees potential to reach readers and advertisers in more ways.



Theresa Rogers

She has a degree in Journalism from Ryerson University. When not writing and editing, she practices her other passions – travel, fitness and photography.

She can be contacted at theresa.rogers@cfc.ca.



Thorsten Kröller

wish him all the best for the future.

“In Thorsten Kroller, we have found the ideal successor for Dr. Roland Peter within our own ranks. Through his successful efforts at BYK, Thorsten Kroller significantly expanded the Business Line Plastics Additives, notably through the successful integration of targeted acquisitions. We are convinced that together with our employees, he will create a successful, sustainable future for ACTEGA.”

Changes at Northspec Chemicals

John MacLean is retiring at the end of September from Northspec Chemicals Corp. He founded the company in 2001 with his partner Noel Shahnazarian, seeing it grow over the years into a major specialty chemicals distributor. His own

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background was in both laboratory work and sales, at Borden Chemicals, Tremco, Union Carbide and Canada Colours & Chemicals.

Shahnazarian remains principal of North-spec, and Robert Jacksteit takes over as vice-president, sales and marketing. Joseph Loncar becomes vice-present, new technology

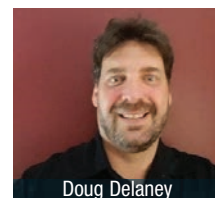
platforms, with he and Jacksteit supporting much of MacLean's previous customer and supplier duties as well.

Internally, Jane Radke has been named director of finance, Ron Elfer will take over as operations manager, Tim Zheng has recently been added as supply chain manager, and Jenna Harris

has been named logistics manager. In addition, Arpi Sookiassian will take over the regulatory role and handle Responsible Distribution, along with inside sales. Maclean will also still be available on a contract basis after this period of transition.

Delaney Joins American Plating Power

Doug Delaney has joined American Plating Power as a senior applications engineer. He has over 21 years of experience with rectifiers, and has a degree in Applied Science and Industrial Electricity. "We are very excited to have Doug join our team," said Waasy Boddison, co-owner of American Plating Power. "His vast knowledge of our industry will be an asset to American Plating Power and our customers."



Doug Delaney

Delaney's focus will be to continuously improve the customer experience including participation in developing various new standard and custom products and services as the industry demands. "I am excited to start a new chapter and jump right in working with well known people in the industry," he said, "to bring the products and services that the market demands."

American Plating Power specializes in improving process results and strengthening customers' bottom line with reliable DC power for a wide variety of electrochemical processes. It manufactures and distributes both switch mode (IGBT) and SCR/Thyristor DC power supplies. All products are 100 percent duty cycle rated.

Sun Chemical Names New CEO

Sun Chemical has appointed Myron Petruch as its president and chief executive officer, effective January 1, 2019. Petruch assumes leadership of the company after serving as president of Sun Chemical Performance Pigments and general manager of the Pigments Products Division since 2008. He succeeds Rudi Lenz who will transition to the new role of vice-chairman of the board at Sun Chemical. In this role, Lenz will advise the business on key strategies and issues as they arise.

The Performance Pigments division has had eight consecutive years of record sales under Petruch's leadership. He has additionally secured eight bolt-on global acquisitions which have proven to be solid additions to the division, including the high-purity iron oxides business of

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Myron Petruch

Cathay Industries in 2018, Kingfisher Colours in 2015 and Benda-Lutz in 2012.

Petruch earned a master's degree of business administration from Seton Hall University and a bachelor's degree in chemical engineering from the New Jersey Institute of Technology. He started his career at Engelhard in 1986 and held a number of positions including sales manager, product manager, director of sales and marketing, and general manager before he joined Sun Chemical.

Calendar of Industry Events

October 22-23, 2018: RadTech Fall Meeting, Renaissance Cleveland Hotel, Cleveland, OH. www.radtech.org

October 24-25, 2018: Canada Woodworking East, Espace St-Hyacinthe, St-Hyacinthe, QC. www.canadawoodworkingeast.ca

November 6-8, 2018: Fabtech 2018, Georgia World Congress Center, Atlanta, GA. www.fabtechexpo.com

March 19-20, 2019: BIG IDEAS for UV+EB Technology conference, Redondo Beach, CA. www.radtech.org

April 1-4, 2019: Powder Coating 2019 conference and tabletop exhibition. Renaissance Orlando, Seaworld, Orlando, FL. www.powdercoating.org

April 8-10, 2019: American Coatings Association CoatingsTech Conference, at the Westin Cleveland Downtown Hotel, Cleveland, OH. www.paint.org

May 22-23, 2019: CPCA Annual Conference and AGM, at the Sutton Place Hotel, Vancouver, BC. www.canpaint.com

June 3-5, 2019: Sur/Fin 2019, Rosemont, IL. www.nasfsurfin.com

October 1-3, 2019: AAC Aluminum Anodizers Council Conference, at the Houston Royal Sonesta in Houston, TX. www.anodizing.org

October 2-3, 2019: Canada Woodworking West, at Tradex, Abbotsford, BC. www.canadawoodworkingwest.ca

October 31-November 2, 2019: WMS Woodworking Machinery & Supply Conference and Expo, at the International Centre, Mississauga, ON. www.woodworkingnetwork.com

November 11-14, 2019: Fabtech 2019, in Chicago, IL. www.fabtechexpo.com

November 13, 2019: Canadian Association for Surface Finishing. www.casf.ca



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CPCA Advocacy Initiatives and Industry Developments



pliers and distributors to their customers across Canada. The Federal Government, through the Pest Management Regulatory Agency (PMRA), moved in 2017 to severely restrict uses of three registered biocides in Canada (OIT, MIT/CMIT) coming into effect in December 2018. CPCA’s formal challenge of PMRA’s decision, using study data and exposure evidence, successfully delayed the implementation of the decision while further data was collected to help inform the process.

However, more data is required to make a strong case for retaining current concentration levels for these critical biocides. PMRA agreed to conduct a special “cluster analysis” of the paint uses containing seven other key biocides (folpet, dazomet, chlorothalonil, sodium omadine, ziram, diodofon, and CMIT/MIT). This analysis will be done during the re-evaluation process over the next two years. Here again, it is critical that those who sell and/or use these ingredients in their paint and coatings formulations provide data to retain these substances in order to achieve the maximum performance in a wide range of product formulations. CPCA continues building its case to retain important biocides for the coatings industry in Canada.

The paint and coatings industry is one of the most highly regulated industries in Canada and compliance is not an option. Every month the Canadian Paint and Coatings Association keeps its members informed of vital information from government, industry, and media through a number of publications and bulletins, and a Members Only ‘monthly’ comprehensive publication called Regulatory Radar. This e-newsletter connects members with targeted, relevant, and timely information on the development of, and compliance with, regulations in Canada and abroad, as well as CPCA advocacy initiatives and industry developments. Below is a sampling of articles published in Regulatory Radar over the past three months.

CPCA Provides Information on Key Biocides Used for Paint Preservation

PMRA is now seeking critical information to complete its decision-making related to key biocides provided by sup-

Earlier this spring CPCA distributed a PMRA questionnaire and compiled responses from members to inform risk assessors of the true exposure risks associated with biocides in paint and coatings mixtures. The goal was to prevent any undue regulatory restrictions being imposed before 2020. However, PMRA is still seeking additional information needed to make final decisions. Everyone in the coatings industry should be fully aware of the potential impact of more use restrictions for these key substances and help prevent the potential for negative impacts on their products.

CPCA is seeking to determine the average square feet one painter paints per day as well as the maximum litres a typical professional painter applies per day. Current estimates or assumptions made by government assessors in this regard are extreme and most consider impossible. PMRA is looking for research results, survey results, or

proprietary information that would confirm the appropriate parameters to help make a more informed decision. PMRA is also looking for an average or range of volumes that a commercial/residential painter uses per day on a typical size facility (e.g. small, medium or large). CPCA welcomes any and all such data for a more accurate assessment based on the facts.

CPCA Focused on PMRA Treated Articles Policy

New guidance on PMRA's treated articles policy will be published in the fall of 2018. The use of biocides in Canada is regulated under the Pest Control Products Act (PCPA). There are thousands of antimicrobial products for sale in Canada claiming to kill germs, bacteria, mold, mildew, and algae either at home, work, school, or in hospitals. Products made in, or imported into Canada, are required to use only active ingredients that are registered with the federal government for their specific uses. PMRA has consulted CPCA on drafting information they will use to communicate Canada's formal position on treated articles to businesses and individuals. CPCA submitted critical member insights and recommendations on two drafts to date and these are expected to be published by PMRA this

Fall. This will be done along with a guidance document on 'acceptable' label claims for antimicrobial treated articles and an Excel spreadsheet that lists the current registered antimicrobial active ingredients and end use products.

According to the proposed guidance information, if a pesticide has been incorporated in or applied to an article as a delivery mechanism for the pesticide, the pesticide (e.g., insecticide) and the treated article (e.g., clothing) must each be registered as a pest control product under the PCPA. However, in the case of water-based architectural paints, an antimicrobial is added to the formulation to prevent "in-can" and "dry film" microbial contamination of the paint. Because the pesticide has been incorporated in order to provide a benefit to the product itself, it must be registered under the PCPA for that specific use. However, the actual paint does not need to be registered.

CPCA Seeking to Clarify Potential Impact of Furan Group Assessment

Under the authority of the Canadian Environmental Protection Act (CEPA), the federal government's Chemicals Management Plan is currently assessing over 4300 chemicals in commerce for toxicity, with more than 1500 now



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being assessed in the final phase. According to a recently published Draft Screening Assessment Report (DSAR) and risk assessment scope, all substances in the furan group may be used in CASE products. CPCA confirmed that furfuryl alcohol was proposed as toxic, and that phenolphthalein was non-toxic. However, for the latter, the exposure of the ingredient in consumer products is being tracked closely by officials.

CPCA also sought clarification from federal officials regarding the use of furfuryl alcohol in industrial products and the possibility that the ingredient might be captured in future risk management measures and its use restricted. On this matter, Health Canada stated that: “The level of risk determined in the assessment leading to the proposed conclusion of CEPA-toxic for furfuryl alcohol was calculated based on consumer exposure during a single-event use in a home setting, of a wood stripper product containing this substance. Therefore any risk management developed will focus on wood strippers now available to Canadian consumers, rather than products exclusively used in industrial settings. The wording for any risk management measures will clearly delineate this as the target focus.” As part of the follow-up activities to track changes in commercial use patterns Health Canada asked CPCA about the use of Phenolphthalein as a color agent. CPCA surveyed its members and responded to Health Canada in July and continues to monitor possible future actions on this substance in the coming months.

CPCA Presses Health Canada for Critical Amendment

The federal Hazard Products Act includes a provision that requires distributors to prepare and maintain “true copies of labels” for six years. A true copy of a label must accurately reflect the original document in shape, size, and colour. CPCA met with senior government officials arguing that such a requirement adds an enormous compliance burden on industry without any tangible improvement to workplace safety. Furthermore, there is no other GHS-compliant country in North America or the European Union, which has such labeling requirements. WHMIS 2015-compliant labels are already affixed to the product container and Safety Data Sheets contain the WHMIS 2015 regulatory information for worker safety.

CPCA, and other industry groups, also argued from a product security perspective that having such widespread, potentially uncontrolled access to a manufacturer’s true labels could easily lead to illicitly labeling counterfeit and even brand name goods. The manufacturer’s immediate loss of copyrighted label artwork and valuable branding elements upon releasing “true copies” would be enormous. Following the interventions of CPCA and other industry associations, government officials have agreed to review the intentions for including the requirement in the Act. At the same time, CPCA and other industry members continue their work on a legislative amendment to remove this requirement from the Act.

CPCA Work to Maintain VOC Exemption

Canada’s VOC regulations for architectural coatings provide an exemption for 10 product categories that exceed established concentration limits. These products can only be sold individually in containers that are no larger than one litre. A recent incident involving the sale of multiple one-litre containers combined into a larger pail prompted the federal government to investigate the scope of this practice, which goes against the intent of the exemption. As a result, the government hired PRA Research to determine the number of products currently for sale under the regulatory exemption. Regulatory compliance is the top priority for CPCA and its members. In an effort to maintain this important exemption for specific uses CPCA assisted PRA in the design and distribution of a survey sent to all paint companies in Canada selling products within the 10 exempted categories.

CIC Industry Members Propose a Measure to Maintain HPR Consumer Product Exemption

Provincial and labour representatives are calling for the removal of the exemption of ‘consumer’ products under the Hazardous Products Regulations (HPR) based on their claims of a widespread inability of employers to obtain compliant Safety Data Sheets for consumer products used in Canadian workplaces. The removal of the exemption would be a tremendous cost and undertaking for industry, therefore industry representatives have repeatedly requested evidence that would identify risks posed by the use of consumer products in the workplace. However, no evi-



dence has been forthcoming to support these claims.

Industry representatives, including CPCA, have made recommendations that the Committee develop a list of hazardous consumer products that may cause injury or illness to Canadian workers and work with the Canadian Centre for Occupational Health and Safety (CCOHS), to generate compliant safety data sheets (generic SDS) for the consumer product categories deemed problematic. Industry also recommended that appropriate educational products be developed to assist Canadian employers seeking to use consumer products in their workplaces or unable to acquire the equivalent information already available for industrial products used, stored and/or disposed of safely in the workplace. Government officials are expected to present options to resolve the issue later this fall.

Government Responds to Review of Environmental Protection Act

The federal government recently tabled its final response to the House of Commons Standing Committee on the Environment's recommended changes to the Canadian Environmental Protection Act (CEPA). In the report, the government agrees with the intent of many of the Committee's recommended legislative reforms. Despite the fact that the current Parliamentary session cannot accommodate a bill, the federal government committed to addressing many of the recommendations through improved policy and program administration.

The report goes on to describe the many areas where the government is committed to taking further action in the near-term. In the meantime, officials will continue to consult with stakeholders on ways to improve the Act. CPCA made several representations and submissions to the Parliamentary Environment Committee, the Minister of Environment and Climate Change, and senior government officials arguing the merits of maintaining Canada's risk-based approach to chemicals management. CPCA continues to monitor the issue closely and participates in industry and stakeholder consultations on behalf of its members to accurately reflect the views of the coatings industry in Canada. ■

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Indispensable Lacquers

WHILE MATTE FINISHES have become very fashionable for wood in recent years, lacquers still command a significant segment of the market. This applies with tinted and colored metal parts as well, where there is a need for long-term preservation of the finish and the “new” look it has when first purchased.

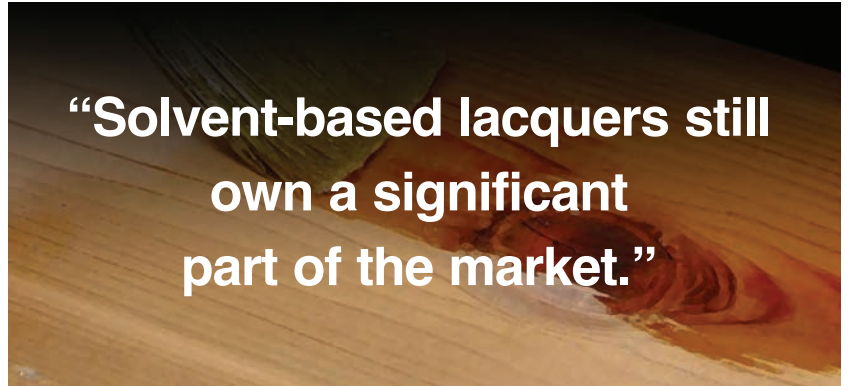
As with other areas of coatings, there has been a move to developing waterborne lacquers in recent years. However, solvent-based types still own a significant part of the market. The ingredients and consistency required for many lacquers have meant that the switchover, while very successful in some applications, is not likely to be universal in the near future.

Axalta’s Amarium range of pre-catalyzed lacquers is single-component finishes. They are supplied ready to spray,

with no need for mixing further ingredients.

The materials are HAPs-free, and low-VOC formulations are available. Axalta describes them as being fast-drying and easy to use, and offering excellent clarity, flow and build properties.

“They are available as a complete self-seal system or



“Solvent-based lacquers still own a significant part of the market.”



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they may be used with a companion sealer when desired,” the company states. “They offer excellent durability, and can be applied by conventional airspray, HVLP, airless or air-assisted airless equipment.”

Amarium lacquers are compatible with Axalta Wood Finishes color systems and are said to surpass all KCMA performance standards when applied properly.

The range includes Amarium Premium Pre-Catalyzed Lacquer Black Undercoat, a versatile lacquer undercoat for wood substrates that is catalyzed at the factory. It reportedly offers superior mar, solvent, and chemical resistance compared to non-catalyzed lacquer undercoats. When applied properly with its companion topcoats, Axalta says, the film properties of the system provide a tough, durable finish that, again, passes all KCMA performance standards.

A further product in the range is Amarium Conversion Lacquer. This is designed for kitchen cabinets, furniture or other applications where wood needs a durable coating. It is designed to be a self-seal system, but can be used with an approved companion sealer if desired.

The Katilac Coatings EK Series of pre-catalyzed lacquers is a line of solvent-borne, one-component, alkyd/amino resin-based conversion coatings. They are water-white, yellowing-resistant coatings that are specifically designed, Katilac says, for high-quality interior wood finishing.

They can be used in a self-sealing system or in conjunction with Katilac’s EK6 pre-catalyzed sealer or EK8 pre-catalyzed vinyl sealer.

The KH Series is Katilac’s entry in the HAPs-free pre-catalyzed lacquers market. These solvent-borne, one-component, alkyd/amino resin-based conversion coatings are also water-white, yellowing-resistant coatings specifically designed for interior wood finishing. These, too, can be used in a self-sealing system or in conjunction with Katilac’s pre-cat-

alyzed sealers.

Sherwin-Williams’ entry in this field is its Sher-Wood pre-catalyzed lacquer. This, the company states, is a fast-drying, high-performance, catalyzed lacquer for the general wood finishing market.

After catalyzation, it provides six

months’ pot life as a pre-catalyzed lacquer. It meets KCMA test requirements for finishes as a self-sealed system, or over catalyzed Sher-Wood vinyl sealer, and offers a reportedly very fast dry to sanding and packing, compared with nitrocellulose lacquer.

“It is ready-to-spray, with no

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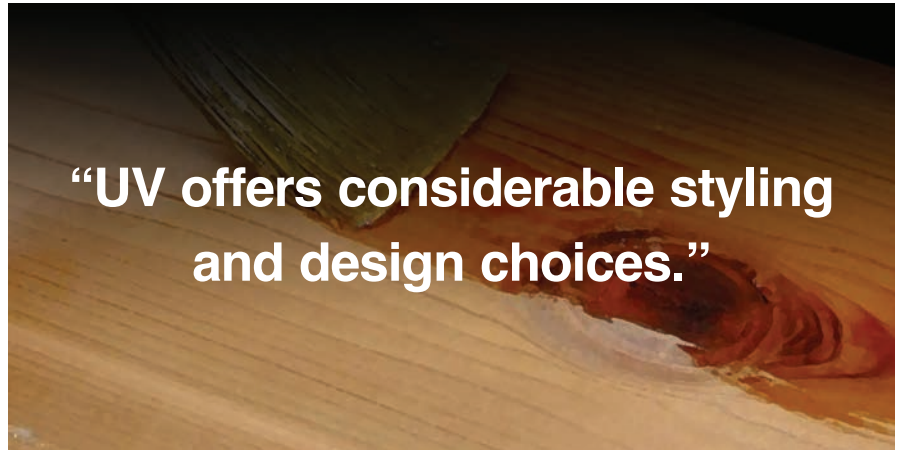
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reduction needed,” the company says, “and has good resistance to household stains. It also offers good flexibility, passing 20 cold-check cycles.”

It can be applied by conventional, airless, air-assisted airless and HVLP spray methods.

Canlak has developed a complete line of conventional nitrocellulose lacquers that are both pre-catalyzed and post-catalyzed. These are available in a range of styles from opaque to transparent.

“Our products have excellent non-yellowing properties,” Canlak says, “and were designed to dry rapidly. This family of products respects the most recent norms on VOC and HAP regulations.”

Among other products the company provides, the Canfast Light Series 916-0XX clear topcoat lacquer is an acid-cured post-catalyzed finish that is recommended for a wide variety of interior woodwork. It features non-yellowing properties, the company says, along with excellent clarity and fast drying.

The series can be used over any of the company’s vinyl or post-catalyzed sealers, and can also be employed as a self-seal system to provide a quick build. It is recommended for kitchen cabinets, bathroom vanities and furniture, and features low VOC emissions as well as meeting all KCMA standards.

MacDermid Enthone’s Fashion Fin-

ishes product line has been expanded to include electrophoretic colored coatings. Electrolac UV applies colored UV-curable electrophoretic lacquer to temperature sensitive substrates like plated plastics, zinc die castings and aluminum.

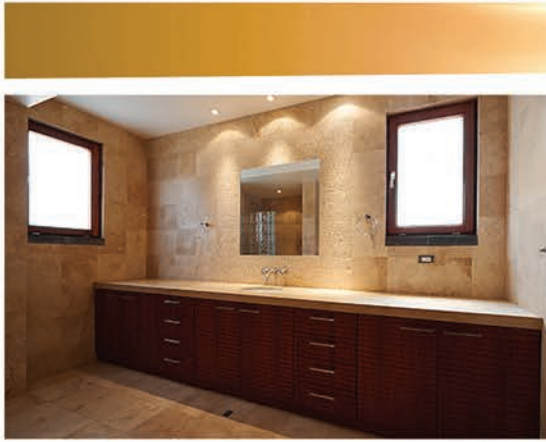
With the ability to apply almost any color, Electrolac UV offers considerable styling and design choices.

Finishes such as satin and dark chromium have become highly desirable to many automotive companies, and have continued to gain in popularity as stylists seek to differentiate designs and brands. The satin layer uniformly scatters any light falling on to its surface, giving a shimmering soft bright metallic appearance.

Fashion Finishes offer a micro-satin effect and can be adjusted from a fine sheen to a heavier matte, depending on the design needs. Dark chromium can be electrodeposited in styles ranging from a smoky type appearance through to an almost black finish.

If added protection is desired, Electrolac water-based acrylic lacquer is used as a post-treatment.

Lacquers are far from the newest finishing materials to arrive, but they continue to offer a high-quality look, as well as broadening the technical capabilities they use. As a way to turn a product into something generating a high margin, they still can’t be beaten. ■



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STREAMLINING Flatline Output

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"Venjakob offers a quick color-change management system," says Christian Streit, the company's head of research and development. "This fully automatic system for coating lines drastically shortens color changing times and saves resources."

The company's newest equipment includes a filter-on-demand feature that uses a fleece filter exhaust system to keep the air balance constant. This means the quality of the finished surface is extraordinarily constant, Streit says.

"We also offer total enclosure so almost no solvents should leave the machine. We have an integrated extraction system for solvents within the belt cleaning unit of the VEN SPRAY Perfect machine."

The company has recently added features such as predictive maintenance alerts and is in the process of commercializing self-optimizing machines that are, in effect, self-learning.

Venjakob is a partner in the Tapio software platform, developed in Europe by Homag. This combines sophisticated digital products for the wood industry with thousands of production machines along with the highly varied supply of production material and tools in an Internet of things (IoT) platform.

Tapio therefore pools knowledge from the areas of mechanical engineering, servicing, software and consulting for businesses of all sizes worldwide to make production easier. It provides uniform solutions for a diverse range of process stages.

"[It's becoming] more difficult to find staff with a high knowledge in coating and finishing, therefore the industry increasingly depends on automation," Streit says. Venjakob can integrate handling robots to optimize the



Superfici's Compact 3R features a pressurized cabin.

workflow, and its customized solutions are highly automated, he adds. In-house capacity in programming and switch-control cabinet manufacturing enable the company to offer a program to control the entire line and to integrate other machines as well.

The company also focuses on space-saving solutions. User-friendly operation is handled through a clearly arranged screen display that ensures optimum operation.

The North American market, Streit notes, is moving away from stains for workpieces and toward a preference for lacquers in numerous colors. This can affect how a line needs to be configured.

"The proportion of stained parts to painted parts used to be 70:30," he says. "Now, the trend has turned those proportions around."

Graco Inc. has added a number of features to its flatline systems, including improvements to its existing technology. These, according to Bill Heuer, worldwide product manager in the Industrial Products division, include conventional applicators and pumps that ensure fine spray patterns with consistent flow rates that also ensure a quality finish and material savings.



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“Graco’s G15 / G40 guns are designed for wood applications with fine finish options for flatline systems,” he says. “The AAF tip produces a soft, even spray that’s ideal for applying stain and clear coat onto wood products like cabinet doors or baseboards. The AAF tip produces a quality spray pattern at fluid pressures of less than 500 psi, improving transfer efficiency.”

Graco’s lacquer air cap atomizes at lower pressures. This, he explains, prevents air cap buildup, which can cause bad patterns or dried paint on the product.

“Our AirPro EFX automatic air spray gun works well for coating the tongue and groove of wood flooring on linear machines,” he says. “It can make a tight pattern that will only get material on the tongue or groove, with almost no overspray on the face of the board.”

A high-pressure diaphragm pump, the Endura-Flo, has a consistent start-up pressure and unique fluid flow design. The stainless steel fluid section promotes a swirling motion that clears material so efficiently, very little solvent is needed during color changes. This saves time and product. The low-noise pump can also purge with air.

“Control systems once available only to large manufacturers with big budgets are now available to manufacturers of all sizes,” Heuer says. “Graco’s Intelligent Paint Kitchen includes smart sensors that communicate with each other to efficiently circulate coating out to a color change manifold on a flatline system. It is less complex and less expensive than traditional remote monitoring and control systems that manage paint kitchens feeding flat lines.”

Today’s lean companies, he notes, often do not have the maintenance staff that they once had, so they need high-quality equipment that is easy to maintain and seldom breaks down. Graco is developing products with fewer parts that can be rebuilt

by an operator, instead of a maintenance person.

“We simplified the design of the Endura-Flo pump so that it lasts longer and an operator can easily access and maintain key parts,” Heuer says. “An isolated air section makes the 3:1 Endura-Flo the only pump in the industry that does not leak fluid in the air section if a diaphragm fails. Our two-component ProMix proportioners have a new fluid manifold design that reduces material volume and streamlines fluid porting for cleaner flushing through flat line systems. Manifold dump valves allow simultaneous purging and loading – reducing color change time and containing any waste.”

Customers also need long-lasting equipment that fits into limited spaces, he notes, and Graco uses Husky 515 and 715 air-operated diaphragm pumps that fit the clearance restrictions on most flatline machines. Known for their durability, these work well, he says, for circulating belt cleaner and have easy-to-service air valve and ball checks.

“Graco’s electric agitators have flexible mounting options suitable for flatline configurations. Their quiet electric motors improve any workspace, while consistently agitating paint at any drum or tank level. Running them at the same speed extends the life of the agitator and the paint.”

Future challenges in the flatline business include adjusting to the use of different types of coating materials.

“UV and 2K urethanes cannot come into contact with ultraviolet light and moisture,” Heuer points out. “That is why Graco offers sealed pumps like the Merkur Bellows, Sealed 4-Ball, Endura-Flo, and Husky Air-Operated Diaphragm. Each sealed pump system can be equipped with a patented reed-switch that allows for flow rate visibility and runaway protection of pumps feeding flat line machines.”

Superfici’s flatline finishing products in its DMC line include a range of

FLATLINE FINISHING SYSTEMS

systems, such as its Compact 3 R model. Production quality on this is managed through two-step application, achieved by a double-arm reciprocator, and by the pressurized cabin, which features a downdraft airflow, a double filtration system at the air inlet and a wide filtering roof for the cabin.

Easy use and constancy in the production quality is achieved by proprietary 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 machine, combined with fast and efficient hot air drying systems, eventually completed by a Poliedra UV dryer for the three-dimensional curing of the workpieces when applicable.

For large-scale panels, Superfici sells the 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 workpiece because of the optimal lacquer distribution even in the most critical applications.



The VEN SPRAY Perfect unit has integrated solvent extraction.

SAMES KREMLIN has improved ease of use in its flatline systems by mounting automatic guns in two sections. This configuration avoids any need to disturb automatic gun settings, as well as requiring hardly any downtime. It is also easy to clean.

The company has developed its proprietary Flowmax pump technology as a way of increasing the adaptability of its lines. Thus, if an ingredient in a coating is moisture-sensitive, it need not come into direct contact with air at any point.

SAMES KREMLIN's two-component mixing systems ensure the required gloss levels will never change from what the customer specifies.

No flatline system will be ideal for all purposes. However, with new-generation software and increasing attention paid to ensuring systems are tightly sealed while operating, machinery suppliers can guarantee the highest quality levels.

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Pretreatment Aims for **SUSTAINABILITY**

PRETREATMENT OF METALS was once a simple business of rinse, clean and dry. As metals finishers have learned more and more about corrosion processes and the effects of different kinds of contaminants, so the chemistries used in pretreatment have become both more sophisticated and more precise.

John Kukalis, business development manager with Henkel, notes a market shift towards thin-film zirconium oxide-based pretreatments. These, he explains, removed regulated heavy metals from the waste stream, and allow for a reduced footprint in the pretreatment process by eliminating stages.

“New multi-substrate cleaners and neutral de-scaler technology has been implemented to improve performance and meet the increased corrosion requirements of the OEMs,” he says. “We also see a move with traditional zinc phosphate technology in employing zinc-based conditioners which enhance the coating performance and improve process efficiency.”

Naturally, regulatory issues are a concern for both supplier companies and their customers. Kukalis says Henkel has been a pioneer in removing chrome from pretreatment applications.

“With restrictions on NPEs (nonyl phenol ethoxylates) in cleaners we have continually worked at making our products as sustainable as possible. With the move to zirconium-based technology we are working to remove regulated heavy metals from our customers’ waste streams.”

Henkel, he adds, is strongly focused on sustainability and has ambitious goals in reducing its carbon emission footprint through reduced CO₂ emissions. Its current target is to reduce 50-million tons of CO₂ by 2020 through efficiencies in its products and processes, along with efficiencies that help customer processes.

“Henkel’s long-term aim is for a 75 percent reduction in CO₂ emissions by 2030 through more energy efficient operations,” he states.

Chemistries for pretreatment still call for proper development, and careful implementation. Running mixed metal lines with high aluminum content, for example poses a challenge.

“Paraffin based dry-film lubricants are difficult to clean,”



A pretreatment line for aluminum.

Photo: Bradley's Metal Finishers.

Kukalis says, “since most of these waxes need higher temperatures to clean effectively.” This is contrary to customers’ common requirement, which is lower temperature processes.

“Weld scale is problematic,” he adds, “and combined with mixed metal lines it possess some more difficult problems in cleaning.”

There is also the ongoing issue of training for plant staff. Henkel offers training through its network of representatives, and also has a special Automotive Phosphating, Technology & Application Course (APTAC) which brings customers to the laboratory for detailed course work and hands on demonstrations to show best practices in operating pre-treatment and cleaning systems as well as troubleshooting.

MacDermid Enthone’s pretreatment products include its New Dimensions cleaners, which are water-based alternatives to solvent degreasing; and its Sintklin and Masco products, water-based cleaners for the cleaning of components before secondary operations or inspection. These are nitrite, formaldehyde and boron-free.

The company offers a wide selection of cleaners and deoxidizers to remove soils and activate a metal surface, and has phosphate and has systems free of phosphate and heavy metals. It also offers zinc phosphates, iron phosphates and conversion coatings to provide a base for painting, and dry-in-place final seals to further enhance adhesion and corrosion resistance.

Its aqueous cleaners for the engineering and metal working industries can remove metal working fluids, coolant, oil, grease, swarf and other shop soils. It also has nitrite and boron-free rust inhibition and formaldehyde-free biocides.

These, the company says, are suitable for most types of cleaning plant including dunk, spray and immersion, and provide a reliable alternative to solvent cleaning.

Chemetall, which is now part of the BASF organization, offers its Oxsilan technology as an eco-friendly and multi-metal pretreatment process. This is used in the appliance industry as well as being a pretreatment for premium car bodies.

“The more stringent environmental legislation as well as the ever more varied metal combinations in applications are giving traditional phosphating processes a hard time,” the company states. “With the Oxsilan technology, a state-of-the-art alternative is now available. In terms of quality, it is comparable to the zinc phosphating process, and with a view to its technical and economic feasibility, the new technology is clearly advanced.”

Chemetall says the process offers

lower process costs, higher productivity, multi-metal capability, and is eco-friendly. It also offers a broad portfolio for diversified applications.

Oxsilan was been formulated to provide a range of products that are compatible with all conventional wet and powder coating processes and can be used as a replacement for zinc- and iron-phosphating, and prior to painting. It offers bare corrosion protection, and passivation.

The process is based on silanes that form aqueous solutions, through hydrolysis and condensation, of polysiloxanes. During the coating process, the reactive silanol groups can be chemically bonded to the metal as well as to the paint coating.

Heat treatment, for example following cathodic electropainting (CEP), further cross-links the polysiloxanes. This creates layers in the range of 100 nanometers.

In combination with many paint

systems, this is sufficient to achieve the same degree of corrosion protection as with 10 times thicker zinc-phosphating layers. This reduces materials consumption and pre-treatment times and increasing productivity. The company claims improvements of 30 and 65 percent have been realized in practical applications.

PPG is promoting what it says is a sustainable set of methods to achieve corrosion protection and paint adhesion. Pretreatments, the company notes, dramatically enhance coating adhesion and reduce the rate of surface corrosion if paint film should be potentially compromised.

“Not only does effective pretreatment depend on good science and high-quality chemical formulations, but also on robust systems that control the temperature, flow and duration of the application process,” PPG says. “Low-temperature cleaners and a wide variety of ambient pretreat-

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PRETREATMENT AND WASHING

ment selections (from 70 to 110 deg. F) can reduce the energy costs required to heat and minimize the sludge and waste generated by your pretreatment finishing system.”

The company offers a complete, integrated line of pretreatment products such as multi-metal safe cleaners, ambient-temperature cleaners, and iron-, zinc- and thin-film pretreatments including zirconium and silane. Its pretreatment portfolio includes versatile products that can operate over a wide range of conditions, it says, and meet the demands of various application methods, substrate combinations and end-uses.

While the pretreatment process cleans and provides corrosion protection to metal and other surfaces, traditional zinc-phosphates generate sludge as a natural byproduct. This sludge can contain heavy metals such as nickel, zinc and manganese that are subject to environmental regulation. To address these issues, PPG has

developed Zircobond pretreatment, an alternative thin-film pretreatment technology based on zirconium chemistry and a proprietary blend of patented additives.

This, PPG says, reduces the formation of sludge byproducts by at least 80 percent compared to zinc-phosphate-based systems. Additionally, a Zircobond pretreatment process can be plugged into an existing pretreatment line easily, with few modifications.

X-Bond 4000 pretreatment is, PPG says, an environmentally friendly process effective for multi-metal applications. Formulated to provide excellent corrosion resistance for steel, galvanized steel, zinc and aluminum, it operates at ambient temperatures, contains no toxic metals, creates minimal sludge, and is an iron-phosphate replacement that improves mixed-metal performance and corrosion resistance without the need for an additional final sealing rinse. It is recommended for use under powder and

liquid coating applications.

The company’s Ultraguard ZCC3 cleaner-coater is its newest development, combining its zirconium pretreatment formulation with low-temperature cleaning chemistry. Chemfos 51HD cleaner-coater is a heavy-duty, dual-action, iron-phosphate system that removes a wide variety of soils; then deposits a high-coating-weight, iron-phosphate on steel surfaces in a single processing step. It is recommended for heavily soiled parts that need to be adequately cleaned and pretreated when space and the number of stages places limitations on a finishing system.

Pretreatment will always call for care, in choosing the right formula, and in disposing of the residue it produces. Clearly, though, the recipes have come a long way in recent years, and the headaches are a lot less than they once were. ■

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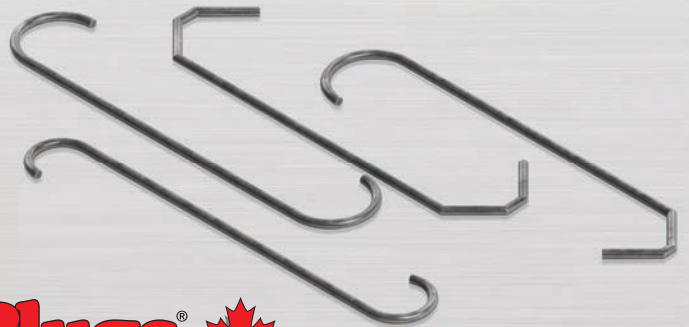
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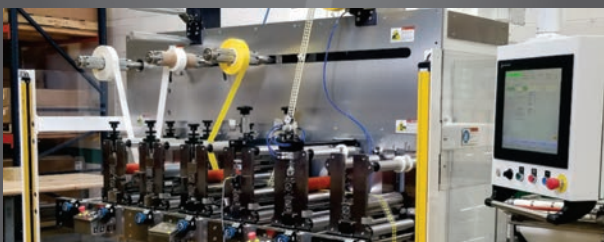
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Physical INSURANCE



NEARLY EVERY PRODUCT to be painted or coated is going to be unique, which means the masking needs will be, too. In many cases, it's simply a matter of using off-the-shelf products to prevent spray or powder from going where it shouldn't. In as many other cases, custom designs and creative combinations of plugs and masking are called for.

Computerized design of masking has increased its efficiency in recent years. Masking suppliers today know the value of being able to deliver to precise requirements, rather than leaving it up to customers to manage the job on the slop floor.

"It's more a game of custom design today," says Chris Malone, masking specialist with Caplugs. "Most masking

Silicone plugs and masks from Caps'n Plugs.



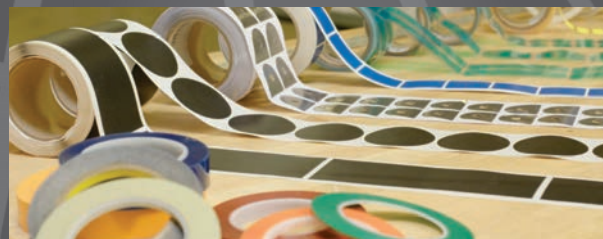
people support themselves by how complicated their designs are.”

One of the tasks for masking suppliers, he suggests, is to look for niches at companies already using their products, and show how to perform a process in a more efficient way.

“With the welding industry, for example, there is spatter. We can prevent that,” he says. “Probably, we’d use silicone, which has the heat resistance to survive if you get it far enough from the actual welding flame.”

Caplugs is interested in offering a line of masking for certain types of weld-nuts, for example. This would manage the more intricate styles, which call for careful customization.

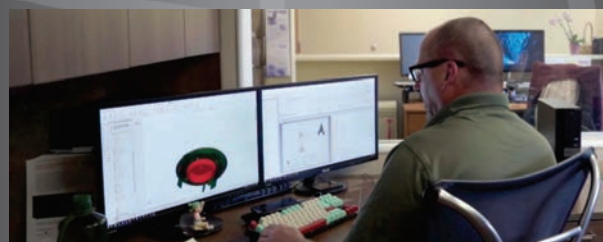
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MASKING



A silicone plug in a metal component.
Photo: Echo Engineering

A further area of interest, Malone says, is products for wheel-rim masking, as well as others for protecting countersink bores.
Paul Hamilton, president of Caps'n

Plugs, says that a number of his customers are now requiring GE grade silicone, which offers superior quality over standard silicones. This is being requested on custom-designed

masking where there is a requirement for increased repeat usage.

“We supply both silicone plugs with Hi-Temp Tape masking for many, many customers,” he says. “All of our custom-designed masking parts have been designed using 3D Solidworks, and have been for the last five to six years.”

Additionally, Caps'n Plugs now has a high-speed, computerized tape slitter and the latest design of tape die-cutter. These can be used to augment the company's standard size line of high-temperature tape discs, squares, donuts and rectangles.

When it comes to both liquid paint and powder coating, masking can be called on not just to protect areas of parts being finished, but also to offset bridging. According to Andrew Benson, design and sales engineer with Echo Engineering, and his team,



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bridging is the technical term to describe paint buildup on transitional points of the surface that create roadblocks, like masking caps, plugs, corners, studs, or gaps.

"Imagine this," he suggests. "You've just completed a powder coating line only to discover the surface isn't leveled around the masking caps or plugs. Instead, the paint is pushing up against the mask creating a messy finish.

"Now you're left with no hope of refinishing without loss of time and money. There are solutions to help reduce bridging, but before we look at how to avoid the issue, it is important to understand what bridging means and why it happens."

Because of the thick coatings, it is easy for paint to build up, he points out. As the paint thickens or if overspray is occurring, it gradually spreads across the surface as far as it can go. When it hits roadblocks in the surface, it can no longer move forward, and instead, the paint pushes up along the sides of the mask and clumps together.

"Trying to fix bridging by yourself can be tricky and time consuming," he says. "One of the most efficient solutions to help reduce bridging is to implement a custom mask that provides protection around the grounding area of the transitional spot. There are several designs to achieve this protection, but a common solution is to design a mask with a flange wrapped around at an angle like an umbrella or a skirt."

When the coater sprays the surface with the thick coating, like powder coating, the umbrella-like flange protects the grounding area from receiving the paint. Then, when the paint begins to thicken, the flow of the thick paint will taper into the untouched grounding area to create a feathered, smooth finish around the mask.

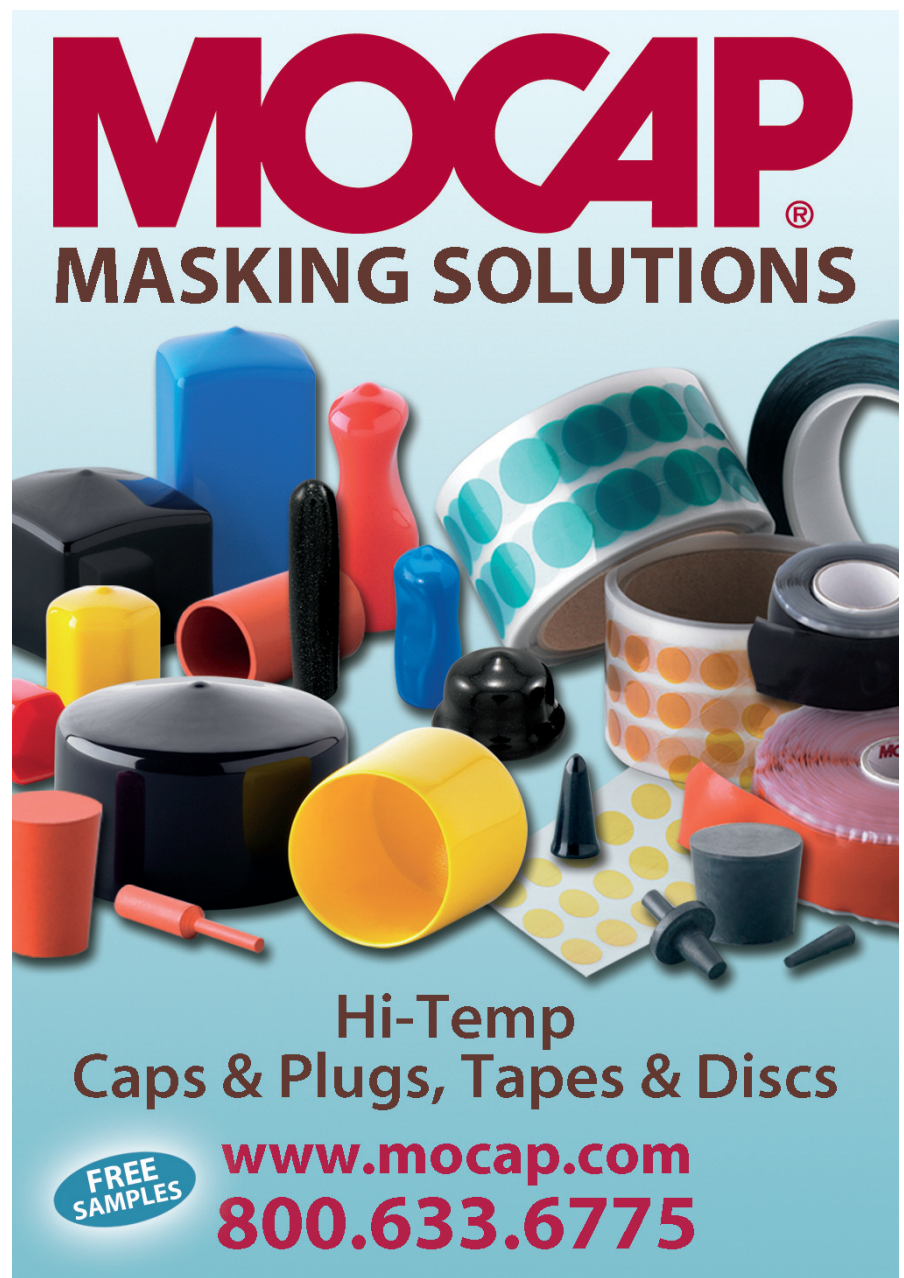
Cross-threading due to paint is another costly issue many surface finishers face, he notes, as re-work can

require a great deal in time and resources. Choosing the correct plug to protect threads will eliminate the need for thread-chasers and taps.

"A push plug will be the most ideal for threaded blind holes, while a pull plug works best for through holes," Benson explains. "Whether masking a blind hole or a through hole, creating a tight seal on the leading threads is usually imperative to keeping all threads clean."

Masking a blind threaded hole requires the use of a push plug, the main objective here being to create a tight seal on the leading threads. To mask the chamfered area of a threaded blind hole, a push plug that incorporates a flange or rib will be necessary.

Echo provides a wide range of such plugs, in materials that include EPDM rubber and silicone. ■



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THE QUEST TO ENHANCE the accuracy of testing in products finishing does not end. But where, a few years ago, testing involved taking a sample off the line to a small lab at the side of the shop floor, today handheld units are taking over.

At one point it would have been necessary to have two testing units for coatings on ferrous and non-ferrous metal parts, for example, but in recent years, it has been possible to develop portable probes that do both.

“Customers like the idea of having these multifaceted instruments that can perform multiple functions,” says James Fusco, Technical Director with Paul N. Gardner Co. “They like the idea of a ‘Swiss army knife’ that integrates multiple functions into one unit. For example, we’re offering a new gloss meter in the PosiTector range that measures both gloss and haze.”

Additionally, accuracy has increased significantly, to the point that sometimes customers are excessively concerned about minor variations in, say, a coating’s thickness.

“You have, for example, dry film thicknesses gauges that can measure down to a few microns,” Fusco says. “It

can happen that customers start asking for numbers that aren’t realistic.

“Some refinishers see a reading go from 37 to 32 microns, and become concerned. They don’t necessarily realize how small a deviation that might be. This sort of concern is customer-driven, but it isn’t necessarily application-driven. People push these values, these numbers, because of concerns related to the marketing material.”

Another issue that can arise is when end-users don’t realize the full range of what their instruments can do. Fusco has dealt with companies that have purchased a gloss meter offering three different geometries, and have not grasped the capabilities this gives them.

“They might want to measure a semi-gloss coating, say, and use a 60-deg. geometry. The other two geometries, 85-deg. and 20-deg., are used for very high and very low gloss applications, and might not get used until one day there’s a need for them.

“I’ve had customers who thought they needed an additional instrument, because they didn’t realize the capabilities they already had in the shop.”

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One high-accuracy system recently brought to market is from Konica Minolta Sensing Americas Inc. The company is promoting a new system for the automotive industry that is produced by Rhopoint Instruments in the UK. The Total Appearance Measurement Systems (TAMS) was developed in conjunction with Volkswagen AG and Audi AG in a four-year development process.

“TAMS has three major functions,” says Dwight Davis, manager for global major accounts with Konica Minolta. “These are to measure the clear-coat of an auto, and the quality and harmony of that coating; to measure the quality and homogeneity of the E-coat process; and finally, to measure the steel and aluminum for any defects in these raw materials.

“No other device on the market today has all this capability.”

Audi coatings, Davis notes, are considered the best coatings in the market, no matter which vehicle class.

Improved correlation and easy communication gives TAMS a significant advantage over existing methods that produce complex results, relying on the user to interpret the values into a real-life visual experience. One single value rates the total appearance quality of a surface.

TAMS' contrast measuring capacity is related to the color of the surface: white and metallic surfaces have low contrast, for example, while a deep black measures 100 percent. Contrast quantifies the visual impact of orange peel and haze effects, both being more visible on high contrast dark colors.

Derived from extensive human perception research by Audi, this value indicates the acceptability of adjacent car parts. It is calculated using waviness and dimension parameters. A value of >1.0 indicates parts are not similar, and if viewed together, will detract from overall visual quality.

The sharpness capability quantifies the accuracy of images reflected in the surface, 100 percent indicates a

perfect reflection. At close distances (<0.5m), sharpness measures how well the surface reflects fine details. At a showroom viewing distance (1.5m), the sharpness capability will quantify haze and clarity.

Elcometer 3045 Pendulum Hardness Tester will test coating hardness using

infrared technology. It provides a fully automated Persoz or Konig pendulum hardness test with no human intervention, the company says, ensuring accurate, repeatable results.

The unit's pendulum is fitted onto the loading pins, the sample is loaded and the door is closed. The pendulum



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automatically moves to the start position, the sample table rises and the test begins.

A dual-axis bubble-level indicator ensures accuracy, on samples up to a maximum size of 200x110x14mm (7.85 x 4.33 x 0.55 in.)

Key features include the unit's repeatability. Also, it performs a full calibration routine and automatically adjusts the unit to meet the specified standard.

It has simple, menu-driven operation in multiple languages, and the unit is adjustable. With an integrated bubble level on the specimen table, users can quickly identify whether or not the specimen table is correctly aligned and if required, simply adjust the rotating feet at the base of the unit.

Elcometer says the tester is sturdy, dustproof, and robust, to ensure a stable environment for tests. The rigid Perspex door allows easy access for sample positioning and if opened



Rhopoint's new TAMS unit for measuring automotive surfaces.

during testing, a warning signal alerts the user and the test stops. The test will not begin again until the instrument is reset. A batch memory stores all test data for output to PC via ElcoMaster data management software.

Fischer's recently released Phascope Paint is a mobile thickness measurement device for coatings. It has its own app for data analysis.

It has, Fischer says, a large measuring range up to 98 mils, and is particularly well-suited for very thick coatings. Additionally, it takes advantage of the computing power already available in a smartphone or tablet.

The unit uses the versatile eddy current method. With this, paint coatings can be measured on magnetizable substrates such as steel or iron, as well as on non-magnetic metals such as aluminum, without any need to switch the device or the probe.

When testing on samples of different aluminum alloys, the company says, the different conductivities of the metal can have an effect on the measurement of the coating thickness. This is why the Phascope Paint has a conductivity compensation feature, which ensures accurate measurement results. This versatility allows for a wide variety of applications, from the automotive industry to heavy corrosion protection.

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Fischer's other recent offerings include the Fischerscope ST200. This is a progressive load scratch tester for analyzing the adhesion and cohesion strength of coatings according to ASTM C1624, ISO 20502, and DIN EN 1071-3. The company says it can be used for measurement in development, quality assurance, incoming inspection, and process control.

Typical fields of application include hard material coatings such as PVD or CVD; automotive engine and drive train components; electroplated coatings; and for characterization of hard anodic coatings. It can also be employed on materials used specifically in medical technology applications; electronic components, connectors, and bond wires; and plasma-applied coating systems.

The ST200 features various measurement modes, such as constant load, progressive load, and incremental load. It offers three analyzing methods: optical microscopy, friction force measurement and acoustic emission measurement.

It has a motor driven XY-stage and Z-axis, and can make measurements on curved surfaces with motion feedback control.

It is designed to provide an automatic image scan of the whole scratch, and uses diamond indenters of various geometries. There are optical filters available for contrast improvement, and integrated electronics, so that no external control unit is necessary.

For the near future, there will be continuing fine-tuning of instruments being offered, as well as still further extensions to their capabilities. But most industry observers see no disruptive technologies on the immediate horizon.

"Some of the biggest challenges can come from interfacing with chemists and engineers," Gardco's Fusco observes. "But at the end of the day, they're people with good ideas, and together you can come up with a workable solution to what's needed."

He cites one situation where the customer was a soda beverage company that wanted to maintain the consistency of its product's quality but was encountering difficulties with its initial plan, which was using a spectrophotometer.

"We have a different instrument that works on transmission of color,

not reflective technology," he says. "We got them to use that and it solved their problem.

Sometimes the most useful instrument a customer can have, Fusco says, is a phone. A call to the instrumentation supplier can save a lot of headaches. ■

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A World of Niches

THE PRECIOUS METALS MARKETPLACE is one of the less visible corners of metal plating and finishing. It changes constantly, since a lot of gold, silver, platinum and rare metals are used in technologies that have a high rate of innovation and materials replacement.

For example, metals recycler emew Corp. estimates that for every million cellphones that are recycled, it is possible to reclaim 35,000 lb of copper, 772 lb of silver, 75 lb of gold and 33 lb of palladium.

"In the last decades, we have witnessed a decline in metal concentrations in ores," says Alex Barshai, emew's head of digital technology. "As a result, mining projects have become more expensive due to the massive amounts of ore that now have to be processed in order to extract pure metal."

More than other areas of plating and metals finishing, therefore, the precious metals marketplace is highly dependent on reclaimed material.

While 'precious metals' can be defined as the market for materials costing over two dollars per ounce, different suppliers define it this way and also by other measures. It is a fluctuating field, with customers targeting specific applications that cannot be supported by less expensive metals. But overall, it has been a commercially solid area in recent decades, and production and recycling capacity have increased as a result.

The electronics and digital devices field has, as noted, been a major consumer of gold and other metals in this category. Resistance to attack from both acids and alkalis is a key property of gold, just as conductivity and reflectivity are key properties of silver. Silver 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.

PM Sales Co. Inc. recently began manufacturing silver anodes at its facility in Watertown, CT. Some of the production goes to the solar panels industry, but portfolio manager Michael Moffatt says a lot goes to the wire industry. Wire manufacturers, he explains, will buy up to 10,000 oz at a time, which makes the market attractive despite its tendencies for swings in price and consumption.

"The gold market is steady at the moment," he says. "People only use gold for critical areas of a connector now, so consumption has gone down. So, there are more applications, but less gold goes onto each component."

Platinum, he says, holds its own in catalytic converters

for cars, and in some aerospace applications such as turbine blades. However, platinum is not a large proportion of the company's business.

"Palladium has been a bit busier," he notes. "It goes into electronics. Thallium can be used here, too, but is a bit toxic, so it has its drawbacks."

Most plating and finishing operations avoid wasting metals, but the economics of precious metals mean that recycling operations are one of the unique features of the market. Recapturing metal from finishing shops, from waste stripping solutions or even in floor sweepings, can be a sophisticated process.

Precious Metals Consultants uses an electrolytic process it calls the Gold Bug System. Randy Epner, the company's president, points out that there can be a steady loss of precious metals in rinse waters, strip solutions, spent plating baths and even ion-exchange resin columns.

"The Gold Bug employs a metallic matrix of enormous surface area," he says, "which is formed into a cylindrical cathode. This, combined with the turbulence created by a dedicated pumping system, exposes the cathode to a continuously renewed concentration of fresh ions. This means fast plate-out to very low concentrations."

A user can, be weighing, sampling or melting the cathode in-house, determine exactly what has been recovered. The cathodes, he adds, are inexpensive and disposable, and a key advantage is that there are no drums of hazardous substances to ship out from the plant. There is thus no need for special documentation, transportation of hazardous fluids or insurance to cover mishaps in shipment.

Further, the process can be used not just with gold, but with silver, palladium, palladium-nickel, platinum, rhodium and iridium. In some cases, it can also be used for reclaiming copper, tin, cadmium and tin-lead alloys.

PMC also offers the IonnetX reclaim system. This, Epner says, was designed after 15 years of observations of the

company's earlier Ionnet system's performance. It is a high-capacity system with the ability to bring metal concentrations down to compliance levels. Because the system is designed with expanded surface area cathodes, its footprint is minimal.

Gannon & Scott offers another process for precious metals reclamation, which it calls the TRu3Tec Thermal Reduction system. This new method for maximizing the value of precious metals recovery from residual plating wastes was presented in June at the SUR/FIN conference and expo in Cleveland, OH.

According to Kristine Murphy, the

company's national sales manager, the value of the TRu3Tec system derives from both the direct value of the metals recovered as well as from stringent environmental controls. The system can process combustible materials with even a low percentage of precious metals, such as ion exchange resins, plating filters and rags, more cleanly than other systems.

"The new three-stage thermal reduction system operates at relatively low temperatures to dramatically reduce the formation of hazardous byproducts, and advanced environmental controls further reduce waste emissions," she says. "Pollution controls includes

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PRECIOUS METAL PLATING

cyclonic separation, wet scrubbing of exhaust gases, and dust collection.”

The TRu3Tec system, housed at the company’s Cranston, RI, metals recovery facility, represents a state-of-the-art enhancement to a similar system with advanced environmental and process controls designed by Gannon & Scott for its metals recovery facility in Phoenix, AZ. Both Gannon & Scott plants are zero-discharge facilities for processing wastewater sludge and plating solutions.

Murphy says the company originated as a jewelry refiner. This was when Rhode Island was a center for the jewelry industry.

“When the jewelry market dwindled, we expanded into plating,” she explains. “We process precious metals scrap. That can be anything that has residual precious metal, such as filters.”

The company’s methods can include ‘sweep’ from a plant floor. This is essentially what she refers to as “a homogeneous mess. We have an

analytical laboratory to detail what percentage of the scrap was precious metal. We use a 40-mesh screen for doing this.”

For a jewelry shop, the requirement can be to refine what’s in the air filters. And often, the job literally entails working with a company’s trash.

The reclaimed scrap can be turned into either powder or ingots. Copper can be employed to melt all the valuable elements in the scrap.

Final extraction of the elements is done at a smelting level, which Gannon & Scott only does to a small scale in its laboratory. Mostly, final smelting is out-sourced to commercial smelters.

A high degree of customization is necessary. Two similar companies might have very different types of scrap, Murphy observes. Or, the chemistry might be very different, even though they are both supplying Apple.

“Our claim to fame is: we will find every ounce of precious metal you have in your material,” she asserts.

“We have to process every shipment 100 percent.”

At recent prices, reprocessing silver requires a level of three to four percent in the scrap. However, silver is Gannon & Scott’s largest volume reclaimed material, since it is used so widely. Applications include the medical and aerospace industries, and glass, where it is used as an anti-glare coating.

The precious metals marketplace, being so specialized, could be expected to be more volatile. However, because the metals it uses are so versatile, they continue to find their ways into emerging products.

Given the worldwide appetite for computerized devices, as well as the increasing need to deflect solar radiation or focus radiation beams in curing systems (as one example), it’s unlikely the field will diminish in the foreseeable future. Specific uses might come and go, but the total trend is going to be one of growth. ■

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Essential Workhorses – **Pumps and filters**

IT IS OFTEN SAID that nothing happens in the industrial world until somebody sells something; it is equally true that nothing gets manufactured without pumps to drive hydraulics, or move fluids and lubricants.

Filters belong with pumps, since the enemy of any good pump is tramp metal or other sharp particles. They can also be necessary to ensure airborne dust is kept away from the manufacturing process. And today's increasing emphasis on wastewater treatment and emissions generally make this sector a more critical one than it used to be.

Filter Pump Industries, which sells under the Penguin brand-name, has a broad range of pumps in its offering. The Series M magnetic sealless drive pumps, the company says, are corrosion-resistant to a wide range of chemical solutions including acids, alkalines and caustics up to 180 F. There is no shaft seal, so there is no seal wear or leakage and there is no seal friction to cause loss of pumping power.

The only moving parts inside the pump volute are the impeller magnet assembly and the bushing, which rotates on the pure ceramic spindle. Impeller and drive magnets provide full torque, prevent slippage and give instant start-up.

These Penguin pumps are constructed of polypropylene and/or Ryton; carbon or Chemloy; or Ryton/Teflon (for bushings), ceramic (for spindle and thrust washers) and Viton (for O-rings). As an option, single phase motors are wired for 115 volts and supplied with a cord and grounding plug. Model M-3/4 can be supplied as a self-priming unit using a 1HP motor.

Also, as an option, Penguin priming chambers can be supplied to other M series pumps to facilitate priming the pump and reduce the danger of running the pump dry. Mounted on a common polypropylene base, the priming chamber is piped directly to the suction of the pump with a flow valve on the pump discharge. Casters can be added for portability. Many of the models offer 316 stainless steel and Kynar construction.

Penguin filter systems are available in numerous sizes to serve all medium- and large-volume tanks. All material in contact with the solution is high-temperature CPVC providing a highly corrosion resistant filter system with no wearing parts. As an option, most systems, both pumps and chambers, are available in polypropylene. All Penguin Series A filter systems are fully equipped and ready to operate including 20 ft of reinforced braided hose, all necessary clamps and fittings, drain valve, flow control valve, and initial set of Penguin PF filter cartridges (15 micron unless otherwise specified). Those systems, which incorporate series 6C filter chambers also include PG series pressure gauge and guard assembly and vent valve. Penguin P series pumps are equipped with TEFC motors with an over-sized bearing set for easy replacement, and an epoxy coated motor housing for acid resistance. All single phase motors are supplied with a six-ft cord/grounding

plug and three-phase motors are shipped unwired.

One option that is popular with some platers and anodizers is the air-operated diaphragm (AODD) pump. All-Flo Pump Co. focuses on the plating industry with these products, which it says provide maximum productivity, ultra-precise performance and low maintenance requirements to achieve excellence in plating.

The pumps keep essential operations running optimally with minimal maintenance thanks to durable construction that withstands the harsh properties of plating chemicals, All-Flo says. Construction uses minimal components, which decreases the opportunity for malfunction and reduces ongoing maintenance costs. The pumps are designed to work within sensitive chemical processes by providing consistency and precision during pumping procedures.

A. Brite offers Finish Thompson motors in its drum pumps, which can be connected to the drum pump without any tools, because of a quick connect feature. There is a downdraft cooling system and double wall housing. These motors offer continuous duty and variable speed. A Brite also offers its EnviroBrite UF/Nano filtration systems, which are designed for wastewater treatment, recovery and reuse. These filters can also be used to minimize waste haul-off of various solutions.

According to the company, its filtration systems are an example of green technology that provide good return on investment while minimizing overall environmental footprint.

Flo-King Filter Systems offers a four-in-one, in-tank system that pumps, filters, agitates, and treats electroplating, anodizing, printed circuit, low-sludging iron phosphate, and allied metal. This helps eliminate leaks and spills associated with out-of-tank filter systems.

Agitation, the company notes, is a natural byproduct of filtration. This feature is frequently sufficient to replace air or mechanical agitation systems. The Flo-King system also offers ease of filter cartridge changes, without the need for tools or production interruptions.

Additionally, the system offers in-tank carbon treatment for the removal of organic impurities, such as brightener breakdown products. It can be used stationary in one tank, or moved from tank to tank as a utility pump.

There are several models available, for small and large tanks, ranging from production to prototype to laboratory in capacity. Construction materials available include CPVC, polypropylene, PVDF (Kynar), and stainless steel, and the system can be used with blanket-like reusable filter cartridges, or with disposables.

Pumps will always remain unglamorous, and easy to overlook. Careful selection, though, always repays the time spent on it. Pumps have to do a rough job for a long period of time, and making sure your operation has the right size and type is a key to success. ■

Zinc Alloys

MARKET HOLDS STEADY

ZINC IS ONE METAL the world can't do without. Its protective and decorative functions in plating have given it uses in hundreds of different products, even if it is not currently in a growth phase.

In early October, the London Metal Exchange was predicting a tight supply for the balance of the year, although it stated that "some 600,000 to 700,000 tonnes incremental capacity will come on stream" at the end of the year. A combination of scheduled mine closures, some suppliers' strategic cuts and environmental measures in China had already contributed to a tight market in 2017 and a draw-down in global stocks.

The need to replace hexavalent chrome because of toxicity issues has been a significant driver pushing zinc and zinc alloys in plating. Trivalent chrome is the usual replacement, but in some instances there has been pressure to change technologies entirely, notably from European automotive OEMs, since the concern over chromium has received more attention on their side of the Atlantic.

Zinc alloys in particular have been successful in this area of replacement. Their impact can be traced back three decades to the introduction of zinc with about 0.5 percent iron, and zinc with six percent of nickel.

"We have seen a reduction in the demand for zinc plating," says Stan Zabrocky product line marketing manager with MacDermid Enthone. "We have applicators that have installed new equipment for Zn-Ni plating lines or converted their present zinc equipment to Zn-Ni plating lines.

"This is based on specification changes and increased demand for Zn-Ni coatings from the OEMs. This includes barrel operations for fasteners and rack applications from brakes and tubular goods."

The End of Life Vehicles Directive in Europe pushed for wider use of higher alkalinity ZnNi, requiring up to 15 per-

cent nickel. Zinc can act as a sacrificial anode when plated on steel, the steel being preserved from corrosion by cathodic protection.

MacDermid Enthone, Zabrocky says, has led the fastener market with ZinKlad program for many years now.

"The end-users are demanding very tight coefficient of friction ranges," he explains. "The approved chemistry used in the ZinKlad program meets all current OEM demands. We are now introducing new passivation chemistry with integrated friction control to meet Japanese OEM requirements. This new passivate does not require a sealant for friction control."

While significant growth figures for zinc in plating might not be on the horizon, he does see some openings. For example, there is a demand for applications with lower quality requirements, such as 24 to 48 hours to white corrosion, to the higher performing coatings of 120 hours to white corrosion.

"There may also still be a demand as a cadmium replacement in military and aerospace markets," he notes. "However, both of these areas are still evaluating Zn-Ni as a cadmium replacement, depending on the application."

Atotech's offering in this market is its ZnNi XL processes. These combine the company's alkaline zinc nickel electrolytes with membrane anode technology.

The membrane prevents the decomposition of organic compounds at the anode and inhibits formation of cyanide. Through use of this process, the company says, the formation of breakdown products can be avoided.

Membrane anode technology also allows for reduced consumption of additives and an extended bath life. The deposition rate is claimed to be 30 to 50 percent higher than in conventional operations, and the quality of the deposits



"Some applicators have installed new equipment for Zn-Ni plating lines or converted their present zinc equipment to Zn-Ni plating lines."

can be maintained at a constant level during production.

Atotech also offers Recotect, a flexible regeneration system for alkaline zinc nickel electrolytes. Through the efficient removal of by-products such as cyanide generated by the decomposition of electrolyte components, this permits users to maintain consistent plating quality, high current efficiency and higher productivity throughout the zinc nickel electrolytes' entire lifetime.

Recotect, the company says, can be easily installed into existing plating lines. The plating parameters of the electrolyte can be adjusted and maintained, enabling a better plating quality.

Dynamix Inc. offers a dozen zinc products and zinc alloys. Dynaplate CLZ is a recent introduction that the company says is an extremely bright and ductile chloride zinc system for rack and barrel plating. It is a two-part system designed for use in non-ammonium, ammonium or mixed chloride zinc plating baths.

The Dynaplate NCZ range of alkaline zinc alloys for electroplating are cyanide-free. NCZ Ni 100 is for electroplating, reportedly offering excellent throwing power and covering power. It produces a deposit consisting of a uniform zinc alloy containing 12 to 18 percent nickel, and corrosion protection up to four times that of a zinc deposit.

Ni200 is also said to offer excellent throwing and covering power. A deposit consists of a uniform zinc alloy containing five to eight percent nickel, and corrosion protection is up to four times that of a zinc deposit.

Ni300 is a zinc nickel alloy for barrel electroplating process offering a deposit consisting of a uniform zinc alloy containing five to nine percent nickel, and corrosion protection up to three times that of a zinc deposit. And Ni400 has 12 to 18 percent nickel. This process, Dynamix says, will meet the requirements of ASTM F519 for non-embrittling of high strength steels, and provides corrosion protection up to

“Membrane anode technology allows for reduced consumption of additives and an extended bath life.”

four times that of a zinc deposit.

Metallurgy is a long-established science, but it still throws out some unexpected results. With demand for

zinc consistent, we can expect that there are still a few tricks it will produce for the market in the future. ■

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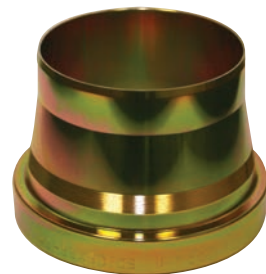
Dynaplate CLZ is the newest generation, extremely bright and ductile chloride zinc system for rack and barrel plating. It is designed for use in non-ammonium, ammonium or mixed chloride zinc plating baths and the additives are water-soluble, which promotes better rinsing, eliminates oiling out, and improves iron removal.

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Resins for Powder Coating

OPEN NEW AREAS

THE INCREASING NUMBER of niches for powder coating have generated considerable development in the materials used to produce the powder. Types of colors, along with more durable powder for harsh or outdoor applications, have driven an expanding industry to refine its selection of resins. In particular, ultraviolet-cured resins are showing up in an increasing number of places.

“Demand for more UV-durable products is growing faster than the rest of the market,” says Mike Iwaniew, business manager for Arkema Coating Resins. “More manufacturers are transitioning to powder coating for exterior duty products, particularly in architectural applications.”

Iwaniew sees a need for improvement in some aspects of the technology, as well as a need for standardization.

“We still need better crosslinker technology to replace TGIC,” he states. “In Europe, many formulators have transitioned to using Primid crosslinkers, but companies in the US are slow to follow due to performance concerns with those products.”

He adds, “As formulators and resin companies explore new advances in powder coatings, the hope is that a global standard will emerge that offers the higher performance and environmental benchmarks needed to succeed.”

Powder coating is not necessarily the least expensive way of finishing a part. Iwaniew says the industry needs to explain the benefits better to its customers.

“There is a persistent misconception in the industry that powder coating is a ‘cheap’ option,” he points out. “We need to do a better job of communicating the potential value of these products to customers throughout the value chain.”

“High-performance powder coatings can provide significant value across a range of applications. There are many high-quality, low-waste, environmentally friendly powder coatings on the market today, and companies – including many Arkema customers – continue to explore new ways to tap into that potential.”

Allnex is a powder coating resin supplier that is primarily focused on thermosetting polyester resins. Its main



A powder coating line using Gema's OptiGun automatic spray units.

product line is its Crylcoat polyester materials. These include, the company says, carboxyl and hydroxyl functional resins for hybrid, TGIC, glycidylester, hydroxy alkyl amide, urethane, and glycoluril powder coating systems.

For UV-curable systems, it offers an increasingly broad product ranges, including its Uvecoat unsaturated resins. UV-cured resins are increasingly important in the market, Allnex asserts, as some of the current materials are sensitive to heat, and UV curing offers a means to avoid such problems.

“Allnex has products that can be used in low temperature thermoset coatings as well as UV powder coatings,” the company says. “These technologies offer cost savings during application by using less energy, and they are the most environmentally friendly coatings on the market. They also expand the reach of powder into temperature-sensitive substrates such as wood, plastic and paper.” The UV portfolio has low-temperature cure offerings across three product lines: Crylcoat polyester resins for thermoset powder coatings, the Uvecoat resins for UV powder coatings, and Additol catalyst masterbatches that

can lower the cure time and temperature of thermoset powder coatings.

Architectural coatings have also started to see developments from the powder coating suppliers. Sherwin-Williams' polyester-TGIC based gloss powder coatings include a wide array of colors, and feature many RAL hues and shades. They hold the Qualicoat Class 1 Certification, the company states, which assures aluminum building specifiers and architects that they are specifying a high-quality product that offers long-term value and consistent quality.

Qualicoat testing includes a plant audit where the powder coatings are produced and a stringent battery of tests that include weathering, gloss retention, wet and dry adhesion, acidified corrosion resistance, thickness and impact analysis, are undertaken.

Sherwin-Williams also offers its Powdura 5000 for architectural coatings. This is formulated using fluoropolymer resin technology and solar reflective pigments.

Fluoropolymer resins have long been a key component in architectural coatings due to their outstanding UV-resistance, and the combination of fluoropolymer resin and solar reflective ceramic pigments defends against ultraviolet radiation. This enhances thermal stability to combat wear and tear of the coatings, and to prevent costly repairs.

The company has also recently been promoting its Powdura One-Cure for applications where there is a need for increased edge coverage and corrosion resistance while applying a primer and topcoat with a single cure cycle. Primer and topcoat can use different chemistries, which can cross-link and co-react to form a tight inter-coat adhesion bond. This type of technology, Sherwin-Williams says, is especially interesting to coaters of heavy-duty equipment or infrastructure components.

This can be particularly relevant in coating parts that use heavy-gauge steel, which takes a relatively long

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POWDER COATING RESINS

time to achieve the required metal temperature for cure. The lower this curing temperature can be driven, the faster parts can be processed, and the less energy required to achieve full cure.

TCI Powder Coatings' product line-up includes powders for the heavy-duty equipment (HDE) market, which is a steadily growing marketplace for powder. Its HDE primers and topcoats were developed to meet the performance requirements of this field, and have been thoroughly tested to the stringent specifications of the major HDE OEM manufacturers, TCI says. The company has a broad range of colors and glosses to meet the mechanical and functional requirements of this market. These are offered in single- and two-coat applications.

Erie Powder Coatings is another player in the HDE field. Agricultural and construction equipment applications often include large parts with lots of surface area, the company says. This means they require outstanding durability.

"For the most part, these types of equipment tend to be complicated and expensive and are often used in locations that are very tough on the coatings," Erie states. "Machines and equipment that work in farmers' fields, in rock quarries, or for use in construction will demand every bit of durability that can be had from a coating."

Erie Powder's super-durable polyesters offer the ability adhere to a metal surface as well as exterior lightfastness. Super-durable polyesters are also popular for their outstanding weather-resistance.

There are some similarities between HDE and the automotive market which of course, is one of the largest users of powder coatings. They are used on some automotive full body base-coats and top-coats, but much more common is the use of powder coating for primer coats, under-the-hood and underbody applications, and for trim parts.

"Many of these uses are high volume but also require high quality," Erie Powder adds.

Often the prime focus for coatings in this segment focuses first on esthetics, especially for highly visible parts such as trim pieces. But given the difficult operating conditions any vehicle must endure, the durability of these coatings is also essential.

"Corrosion control and adhesion are particular problems that powder solves very well compared to liquid coatings," Erie Powder adds. In the other transportation sectors, other coating requirements might be necessary: for example, flammability of coatings is a prime concern for coatings going into interior train compartments or jet cabins.

Powder has its limitations in some demanding applications, but even in those, it has been making inroads. It is likely that the demand, especially from the UV-cured area, is only going to increase. ■

Paint's Silent Soldiers

BIOCIDES, ALGAECIDES AND PRESERVATIVES used to be the silent heroes of the paint business. They kept away mildew and other biologically obnoxious things, while simultaneously reducing odors and unsightliness.

The problem was that, like most things, they were imperfect. Anything that can inhibit or eliminate those life forms can also be potentially harmful to pets and humans. And in the world of substance regulation, sometimes matters of dosage and exposure can be poorly assessed; or the simple phrase 'potentially toxic' gets headlines that phrases like 'safe if applied properly' do not.

"Any preservative chemistry facing scrutiny across the globe is being put onto 'Replace if possible' internal lists among coatings manufacturers," observes David Flaherty. As vice-president and general manager, Americas, with Troy Corp., he has to balance the different factors affecting the company's business in this field.

"Coatings manufacturers are reluctant to place hazard labels on their products, driven in part by consumer preference," he notes. "Often, however, finished product quality may suffer as a result of inferior protection. This trend parallels other industries, such as personal care and cosmetics."

The way toxicity issues are addressed in different countries can also affect how regulatory bodies will form a decision. Flaherty observes that in the U.S., the Environmental Protection Agency is well-known for placing an initial focus on the chemicals, then factoring in the likelihood and route of exposure to those chemicals.

"Other agencies focus on the chemistry alone and do not take into account these additional considerations," he points out. "This is typical of agencies more experienced in pharmaceutical and food industries. In fact, actual danger is a combination of chemistry factored through the routes of exposure."

"Regulatory agencies with ample industrial experience understand that when you control the exposure, the danger diminishes. Some regulatory bodies worldwide are hesitant to make that calculation."

He continues, "Biocides manufacturers like Troy were built on innovation. Unfortunately, the regulatory climate worldwide places considerable challenges and burdens on manufacturers seeking to innovate new active technologies. Development costs and data call-in costs are prohibitive. For the time being, innovations are focused on

maximizing performance and efficiency from existing technologies. One trend in this area is encapsulation of the active material, which has both performance and environmental benefits."

One response industry has to the problem is in offering multiple active combinations of preservative technologies already available. Biocides manufacturers are harnessing the advantages of different actives to bridge any performance gaps, and provide reliable, safe, proven performance.

"This trend is common in both the dry-film and wet-state markets," Flaherty notes. "For instance, advanced dry-film preservatives such as Troy's latest broad-spectrum Polyphase products, incorporate multiple fungicidal actives as well as one or more algaecidal actives. These preservatives provide excellent protection of exterior coat-



Bacteria – the unwanted visitors.
Photo: Biosphere.

ed surfaces against a wide range of potential microbial threats, which is valuable to coatings manufacturers selling their products nationally or globally into widely varying geographies and climates."

Wet-state preservatives such as Troy's Mergal and Nuosept products similarly incorporate multiple actives, he explains, "providing highly capable performance for both quick kill and long-term preservation. This is a benefit of employing multiple actives with different strengths and capabilities."

Dow Microbial Control's principal product offerings in the area of in-can and dry-film biocides, include Bioban

200 Antimicrobial and Rozone 2000 Mildewcide. These, Dow says, are two cost-effective products based on ultra-low leaching chemistry for long-lasting dry film protection. In addition to extended dry film performance, they offer additional protection against algae and a boost to in-can preservation.

Rozone is based on Dow's DCOIT technology (dichlorooctylisothiazolinone). These products, the company states, offer not only dry film performance, but also additional protection against algae and a boost to in-can preservation.

In addition to a robust preservative package, it asserts, good industrial hygiene is vital to protect paints and coatings from microbial contamination. A combination of good housekeeping, manual cleaning, and biocide treatments can help to minimize sources of contamination from the manufacturing facility. Dowicil QK-20 industrial antimicrobial is a fast-acting solution to decontaminate your plant and equipment, clean up raw materials and wash water, rework contaminated products and knock down bacteria in finished products.

Lonza's primary biocidal product offering is its Proxel range. This can be used in latex emulsions and aqueous based paints, as well as metalworking liquids and aqueous mineral slurries. Surface coatings require dry film protection when applied on external walls to protect them from microbial contamination incidence. This is necessary due to environmental conditions like high humidity and UV light.

The inadequate addition of dry film preservatives will lead to discoloration, caulking and flaking of exterior paint film," Lonza notes. The company also offers its Omacide as an antimicrobial for interior and exterior latex paint.

Clariant's Industrial & Consumer Specialties unit has focused on improving compatibility between pigments and base resins, but it is also looking at antimicrobial formulations. It offers a technology based on the inorganic composite of silver chloride with titanium dioxide, which it says delivers a preservative providing truly beneficial properties. The active substances are silver ions, which interact with the microorganisms resulting in a range of effects from growth inhibition and loss of infectivity to actual cell death.

As happens with other regulation-bound areas in manufacturing, suppliers of algaecides and biocides continue to adapt to the constraints imposed upon them. Research and development are expensive and paint is usually a commodity product, or in some cases, an affordably priced luxury: it cannot support the cost of exotic, high-priced additives.

For the foreseeable future, therefore, the best solutions will involve trade-offs and combinations of preservative substances. ■

BY GARY LEROUX

AS NOTED BY MANY in the business community, there will be challenges on both sides of the border with respect to manufacturing for a number of reasons beyond the recent negotiations on NAFTA or possibly the new agreement (USMCA) if approved by Congress. The Business Council of Canada represents the largest group of major companies in Canada representing half the value of the Toronto Stock Exchange and they have indicated real concerns. The Council just released a report done for them by PwC confirming concerns related to the potential impacts of recent US tax reform on Canada's economy. Their corporate tax rate is now two points below Canada's and that is having a bullish effect on foreign investment in the United States.

Meanwhile Canada's last eight quarters have seen stagnation in direct foreign investment. This is largely due to the new US business tax rate, but others have argued it is also due to the nature of increasing regulations in Canada. It may also have to do with the number of large projects in Canada having been stalled for various business and political reasons over the past two years.

PwC's detailed analysis showed that US tax reform has eliminated one of Canada's main competitive advantages and that "this loss will have a significant negative impact on capital-intensive sectors in Canada. All else being equal, these sectors as a whole would likely face a significant shift in investments from Canada to the US over the next 10 years." PwC notes that capital-intensive sectors most at risk include manufacturing related to chemicals, machinery, plastic, rubber, and transportation. Other sectors would be less impacted by the US tax reform.

For the chemical sector this new business environment is expected to have a long-term impact with direct and indirect GDP at risk in the order of \$10-billion, out of an overall negative GDP impact of \$85-billion in total. Also at risk are more than 78,000 direct and indirect jobs.

How this will play out over time will of course be tempered by how the new USMCA trade agreement plays out over time. This will include whether or not Canada responds to US tax reform, how regulatory issues are aligned across the Canada-US border, the impact of new carbon pricing taxes, whether current direct investments in key projects move forward, and if regulatory approval processes are shortened. These are many of the issues CPCA has been working on for the paint and coatings sector in Canada. This relatively new trend for Canada all hinges on the need to reduce business uncertainty and cre-

Challenging Trends for Canada's **Chemical Sector**

ate a more focused economic growth agenda for Canada.

The paint and coatings industry must be mindful of the challenges and continue to seek greater alignment of regulations wherever possible. We were encouraged by the renewal of the Canada-US Regulatory Cooperation Council in June and remain hopeful that the ongoing work plans of the RCC will lead to positive outcomes for industry. Positive approaches in this respect will ensure that both Canadian and multi-national companies operating in Canada have consistent regulations.

This is most critical for the coatings industry when one considers the fact that 50 percent of the total volume of paint and coatings sold in Canada is now imported from the United States. Much of the product now manufactured here in Canada is done largely by US-based companies. We were also encouraged to learn in June that the federal government has decided not to amend existing chemical management regulations in its current mandate, as that would create even greater uncertainty for the chemical sector.

CPCA has long been advocating that the federal government must deal with regulations that conform with its own regulatory policy as noted below:

- **Protect and advance the public interest in health, safety and security, the quality of the environment, and the social and economic well-being of Canadians, as reflected in legislation**
- **Promote a fair and competitive market economy that encourages entrepreneurship, investment, and innovation**

- **Make decisions based on evidence and the best available knowledge and science in Canada and worldwide**

- **Create accessible, understandable, and responsive regulation through inclusiveness, transparency, accountability, and public scrutiny**

- **Advance the efficiency and effectiveness of regulation by ascertaining that the benefits of regulation justify the costs, by focusing human and financial resources where they can do the most good, and by demonstrating tangible results for Canadians**

- **Require timeliness, policy coherence, and minimal duplication throughout the regulatory process by consulting, coordinating, and cooperating across the federal government, with other governments in Canada and abroad, and with businesses and Canadians**

(Source: Federal Cabinet Directive on Streamlining Regulation, Treasury Board of Canada)

Given the foregoing, industry has little choice but to remain positive and support what's best for the economy and address the real challenges where we find them. For the coatings industry – and many other sectors – there appears to be much to ponder these days.

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



Formula for Biocide-Free Paint



Clariant has a new, renewable-based and hazard label-free multifunctional neutralizer, Genamin Gluco 50, and a new advanced stabilizer system, Dispersogen SPS/SPV for 'breathable' biocide-free paints. These offer a step-change to environmentally friendly coatings.

"With architectural paints and especially environmentally friendly solutions expected to grow at an above average rate in the US through 2019, Clariant is excited to introduce new additive solutions that contribute towards a healthier future for the region's thriving indoor paints segment," said Ruzmir Niksic, Clariant's head of regional business line North America for the industrial and consumer specialties business unit.

Genamin Gluco 50 offers formulators the unique chance to reduce formulation complexity with a single additive and keep within the low VOC/SVOC limits of the most stringent regulations and eco-labels. It is suitable for paints certified with an ecolabel such as the US GreenSeal, the German Blue Angel, or the Chinese TenRing. It is also usable for paints that align with very low VOC limits such as those required in Southern California, where only 50 g/L VOC is allowed in flat indoor paints.

The VOC/SVOC-free, low-odor additive is proven in extensive laboratory testing, Clariant says, to boost the lifetime and performance of waterborne paints above current market standards. It achieves this by improving storage stability even in colder regions, increasing tinting strength thanks to better pigment compatibility, and reducing the formation of flash rust on ferrous metals.

It offers these benefits without any negative impact on properties such as gloss or drying behavior. Paints are also easy to apply

and have a pleasant smell that is ideal for indoor environments.

www.clariant.com

Cordless Plating Barrel

The Battery Powered Cordless Plating Barrel from Hardwood Line Manufacturing Co. is not limited by electrical outlet locations. Its onboard battery system makes it mobile on the shop floor.

Convenient, safe, and compliant with existing regulations, its rechargeable battery runs up to nine hours on a single charge. It is adaptable for rack line use, and is available in many standard barrel sizes, styles and perforations.

www.hardwoodline.com

Stains for Interior Wood

A new line of stains for interior wood projects has been released by The Sherwin-Williams Co.

The Minwax Performance Series is an extension of Sherwin's Minwax products, the company says, and includes three staining solutions: Tintable Wood Stain, Fast-Dry Varnish and Fast-Dry Sanding Sealer.

"We know how important it is for interior staining projects to be efficient and effective," said Jeff Winter, vice president of marketing at Sherwin-Williams. "With this comprehensive new wood-finishing system, including premium products, contemporary colors and applicators, we are able to provide everything you need to quickly achieve beautiful and durable results."

Sherwin also announced that an updated 48-color palette was also released for the Tintable Wood Stain, which is also available in a low-VOC version.

The Fast-Dry Varnish is dry to the touch in 30 minutes, the company says, and is formulated for a three-hour recoat time. The Fast-Drying Sanding Sealer can be applied between the stain and the varnish and sands quickly after one hour.

www.sherwin-williams.com

Low Reactive Diluent

Evonik has launched Visiomer Glyfoma (glycerol formal methacrylate) as an exceptionally low-odor reactive diluent. Thanks to its low vapor pressure, it can be used anywhere low-VOC properties are required. This makes it a label-free alternative to styrene and methyl

methacrylate (MMA). In adhesive formulations, composite resins, and gel coats, this reactive diluent can replace styrene and MMA, either partially or in full.

"We're pleased to be able to make Visiomer Glyfoma available in commercial quantities starting immediately," said Dr. Martin Trocha, who heads the Application Monomers Product Line at Evonik. "The launch will offer our customers a versatile reactive diluent hallmarked by a large number of additional advantages."

The methacrylate monomer is characterized by its low flammability and reportedly excellent thermal stability. It remains stable under alkaline conditions, and it is based on 38 percent of glycerol from renewable raw materials.

Visiomer Glyfoma is registered under REACH. Prior to REACH registration, independent test laboratories had already determined, Evonik says, that the monomer does not cause skin or eye irritation, nor does it trigger allergic skin reactions.

www.evonik.com

Online Design Tool

Sherwin-Williams, through its Industrial Wood Coatings division, has introduced the Virtual Panel Studio. It describes this as a first-of-its-kind online inspiration tool that provides furniture, kitchen cabinet and other wood product designers access to a complete library of high-resolution images of finished wood panels. These panels can be saved, downloaded, used in renderings and shared with customers or fellow collaborators to inspire future projects, any time and from anywhere.

"We're excited to be pioneers in the industry when it comes to offering wood product designers the ability to securely source the latest colors and finishes on a wide array of wood species with the click of a button," said Joe Kujawski, global director of marketing, Sherwin-Williams Industrial Wood Coatings Division. "The Virtual Panel Studio is the fastest and easiest way for designers and product developers to not only find inspiration for a perfect finish—but also their competitive edge."

When logged into a password-protected account, wood product designers and product developers can search and save hundreds of

high-resolution wood panel images in the latest trending colors and finishes. The panel images are frequently updated, and users can download them in a variety of formats to be used within design software, create private collections for future reference or share with clients or fellow design team members. Sherwin-Williams curated collections are also available for users to learn about the latest in trending finishes, innovative techniques and popular coating technologies.

Once a designer or product developer has identified their favorite panels in the Virtual Panel Studio, they may make an appointment at the Sherwin-Williams Global Color and Design Center (GCDC) in Greensboro, NC, where a team of color stylists can help them bring their proprietary finish to life.

"What's great about the Virtual Panel Studio is that it truly is the first step to the perfect finish. Our talented team of color stylists at the Global Color and Design Center is constantly innovating to help customers maximize the quality of their finishes based on their performance and process requirements," said Lauren West, global color and design manager, Sherwin-Williams Industrial Wood Coatings Division. "Our suite of color and design tools, paired with our extensive industry expertise, continues to give designers access to best-in-class finishing solutions."

oem.sherwin-williams.com/gede

Portable Drum Handler

Liftomatic Material Handling, Inc., recently introduced a customized portable drum handler for C1 D1 applications, called simply, the C1D1-DCM.

The C1D1-DCM power drum transporter is a powered and self-contained handling device for lifting, lowering and moving all types of steel, plastic and fiber drums.

The unit incorporates a completely electrically enclosed and spark-free power drive, as well as power lift and lower for moving drums quickly and efficiently by any operator in all plants, warehouses and laboratories. Weight capacities up to 1,000 lb are available.

The models offer users a number of benefits, including protection for EE and EX rated environments. Features include a steering/throttle handle for forward/reverse drive, lift and lower features, and tight turning radius for tight aisle and restricted workspace



Liftomatic C1D1 DCM

facilities. The power system can negotiate inclines and offers the ability to load/unload trucks and shipping containers.

Additional features include a fully counter-balanced configuration for "head-on" work with pallets, cabinets, etc., and heavy-duty deep-cycle industrial grade battery. The C1D1-DCM uses Liftomatic's Parrot-Beak clamping system for safe handling of steel, plastic and fiber drums. An optional charger is available.

www.liftomatic.com

Wood Coating System

AkzoNobel has debuted its PurTone Stain System as part of its wood coatings portfolio. The sprayed system combines improved coating technologies with a new process involving transparent color steps, which ultimately delivers the appearance of complex, multi-step wipe-stain finishes – but without the limitations of a labor-intensive wiping process.

By using a two- or three-step coating process in a controlled manner, PurTone provides a spray-stain finish with a clear and highly defined grain. Each finish step can be applied via existing manual or automatic spray processes and can be used under a myriad of clear topcoat technologies.

"The PurTone Stain System makes a brilliant wood finish achievable for all customers," said Doug Gilliam, commercial director for the North American Wood Coatings business. "This stain system is the next step in our offer to deliver more aesthetically pleasing wood tones with enhanced grain definition for consumers. Paired with our unmatched design and color leadership, the new system gives customers the opportunity to develop beautiful wood colors in a really efficient process."

www.akzonobel.com

Gel Timer Viscometer



Gel Timer DV2T

AMETEK Brookfield has introduced the Gel Timer DV2T Viscometer. This unit serves as a replacement for the Sunshine Gel Timer.

It features a magnetic compression-fit coupling to easily attach/detach the glass rod to the instrument. When gel time is reached, the display shows both gel time and equivalent viscosity value.

The integrated temperature probe provides peak exotherm data in deg. C or deg. F if needed.

The test method can be run manually or automatically, using the time-to-torque program stored in the instrument's memory. Viscosity data generated during the test may also prove helpful for complete characterization of material flow behavior.

The Gel Timer DV2T provides continuous torque sensing capability with live display of real time data. The DV3T Rheometer and the DV1M viscometer can also be configured as a gel timer instrument.

Packs of 10 glass rods are available and spare magnetic couplings can be retrofit to existing Brookfield viscometers.

www.brookfieldengineering.com

Dry Filter Booths

Global Finishing Solutions has released its Dry Filter Paint Booth line. This includes Bench, Open Face and Enclosed Finishing Paint Booths.

The company says this is its most affordable and versatile industrial paint booth line,

and that Dry Filter Paint Booths provide safe, affordable solutions for a wide variety of finishing applications.

As part of a corporate initiative designed to improve product quality, consistency and shipping times, GFS has pre-engineered more than 500 models of Dry Filter Paint Booths in a wide variety of sizes, ranging from three to 20 ft wide. In addition to numerous pre-engineered models, businesses and hobbyists can choose from multiple standard options or work with GFS to custom design a booth to meet their specific needs.

"We have taken our most popular industrial paint booth — the Open Face Booth — and expanded upon and improved it, with more size options and the addition of the new Enclosed Finishing Booth," said Mike Lampshire, vice president of industrial sales at GFS. "By pre-engineering hundreds of models and standard options, we are able to provide better-quality, proven products."

GFS Bench and Open Face Paint Booths feature an open-front design, which saves valuable floor space and allows products and parts to easily move in and out of the booth. GFS' smallest paint booths, Bench Booths are available with an integrated raised bench or designed to be placed on a countertop to make painting small parts easy and accessible.

With a broader size range, Open Face Booths and Enclosed Finishing Paint Booths are designed to accommodate larger parts and products. The new Enclosed Finishing Booth is similar to the Open Face Booth, with the addition of high-efficiency filtered intake doors for a cleaner finishing environment.

GFS Dry Filter Paint Booths are designed for reliable performance and longevity. In addition, they are engineered to meet or exceed government safety standards, so businesses can easily achieve necessary equipment permits and stamped drawings, and ensure employee safety.

www.globalfinishing.com

Flexible Topcoat

Axalta has released Imron 3.5 + FX Flexible Topcoat as the latest of its Imron industrial coatings. The new polyurethane formulation offers improved elongation and flexibility, allowing for maximum bend capacity without cracking.

Imron 3.5+ FX Black Flexible Topcoat provides, the company says, superior weathering performance, distinctness of image (DOI) and a consistent high-gloss finish to industrial applications. Its excellent flexibility properties make it a recommended choice for heating, ventilation and air conditioning (HVAC) manufacturers and for metal fabrication where exceptional flexibility is critical. This two-component PUR topcoat is formulated to provide a robust application with good flow and leveling for excellent appearance.

"With improved flexibility becoming a need for several manufacturer's in today's coating environment, we are excited to release a new product that brings a direct solution to the needs of the industry," said Eric Kwasnicka, product manager, Industrial North America. "Imron 3.5 Black Flexible Topcoat's bendable design, is formulated to prevent cracking or chipping, and improving longevity. We take pride in developing quality products that meet our customer's ever-changing needs, as well as, provide improvements in their operating efficiency."

Representing what he calls the next generation of urethane technology, Imron coatings provide long-lasting protection, outstanding durability and color retention properties to a wide array of industries. These premium quality products are formulated to help increase productivity with easy to apply brush, roller or spray application and fast dry speed.

www.axalta.com

Air Make-Up Line

Col-Met Engineered Finishing Solutions has launched its CT Air Make-Up product line. These units are fully customizable over a wide range of air volumes up to 120,000 CFM, as well as the addition of humidity and temperature control. The CT Air Make-Up product line can offer up to 10 orientations as well as PLC and Auto-Balancing as a standard configuration.

Benefits include: low dBA (noise) levels; variable layout configurations; an innovative controls package; energy savings; and extensive third-party listing coverage. The units are highly customizable, and offer lower field electrical costs.

www.colmet.com

Sampling System



CCS controlled containment system.

The CCS Controlled Containment System is engineered to safely contain and control airborne particulate from sampling procedures. Dispensing from drums and weighing procedures are typical applications.

Drums or equipment can be easily rolled into the enclosure through the strip curtain entrance. Both the process and surrounding environment are protected from contamination. A downward flow of HEPA filtered air maintains a cleanliness level at drum or working height while all exhaust air exits out through HEPA filters in the rear wall at floor level. The interior is under slight negative pressure to ensure that no contaminant escapes out of the enclosure.

The CCS Enclosure locates directly on the existing floor. Optional roll and set casters are available for mobility, electrical and plumbing service fixtures, tables with work surfaces and enclosure floors are available. The unit is shipped assembled.

www.HEMCOcorp.com

New Spectro2Guide is a Portable Spectrophotometer for Solid Colors

Uniform color is directly associated with high quality and thus, absolutely essential. The spectro2guide spectrophotometer from BYK-Gardner can measure color and 60-degree gloss simultaneously, but what's new is the quantification of fluorescence by measuring like a fluorimeter with monochrome illuminations.

The combination of a spectrophotometer



with a fluorimeter opens up completely new perspectives to control color quality and stability. Colorful graphs show the fluorescent results on the display and new fluorescent indices are calculated for easy analysis.

The portable unit features: a large 3.5-inch color touchscreen; an icon-based menu with colorful data tables and graphics for intuitive smart phone-like operation; an integrated camera which shows a live preview of the measurement spot magnified by a factor of 4.5:1 to prevent false readings on imperfections; agreement between instruments allowing usage of digital standards among the supply chain; stable, long-term calibration needed only every three months; a 10-year warranty on the LED light source with no lamp changes needed; flexible data transfer via docking station, directly connected with USB cable or wireless with Wi-Fi function; and professional data documentation and analysis with smart-chart software.

www.gardco.com

X MARKS THE SPOT

The SATAjet X 5500 spray gun and nozzle were unveiled in September at the Auto-mechanika Show in Frankfurt, Germany. The new paint system will be available in Canada and the US on Nov. 1.

State-of-the-art paint systems and the latest application recommendations open up new possibilities, but also pose new challenges for professional painters. The SATAjet

X 5500 will offer the high speed and durability of current product offerings, plus the option for a soft, controlled nozzle feel.

Both application technologies – HVLP and RP – remain available, but now each of them has the additional option of an “I” or “O”-nozzle set.

In line with the increasing nozzle sizes within each of the respective technologies (HVLP/RP), the material flow rate increases with constant increments – which means that the spray fan size and width remain unchanged across the entire nozzle spectrum. End-users can now rely on a transparent and consistent system which offers them clear and well-structured application options.

The I-nozzles produce a parallel spray fan pattern with a minimal dry zone and a drier



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center which is ideal for painters preferring a reduced application speed and maximum application control. The film build per coat in comparison to an O-nozzle of the same size is slightly reduced.

The O-nozzles have an oval-shaped spray fan pattern with a larger dry zone and a wet core to accommodate increased application

speed at the expense of slightly less application control during the painting process. The film build per coat in comparison to an I-nozzle is slightly higher.

The SATAjet X 5500 Standard is priced at \$1,193 while the SATAjet X 5500 Digital comes in at \$1,444.

www.sata.ca

Lubrizol Introduces New Acrylic Copolymer Emulsion for Low VOC Direct-To-Metal Coatings



The Lubrizol Corporation announced the commercial availability of its Carboset CR-3100 acrylic copolymer emulsion, designed to offer protective properties and adhesion to metal substrates in low VOC formulations.

Carboset CR-3100 is a water-borne, styrene-acrylic emulsion for direct-to-metal coatings. With adhesion to a variety of metal surfaces and chemical- and corrosion-resistance, the polymer offers performance with a single coat in light and medium-duty industrial applications such as transportation finishes for heavy machinery and agricultural implements; truck and trailer components; commercial finishes for metal buildings and structural members; and industrial maintenance coatings for light and medium duty applications. Carboset CR-3100 can be formulated to a range of glosses and a lasting finish.

“Carboset CR-3100 has the functional flexibility to perform in a variety of environments,” says Nick Sterne, market manager, Lubrizol Performance Coatings. “In addition to providing great performance in low VOC formulations, this resin is APEO and formaldehyde-free to comply with strict regulations. Carboset CR-3100’s performance as a single coat system can also enable more efficient application for end users.”

www.lubrizol.com



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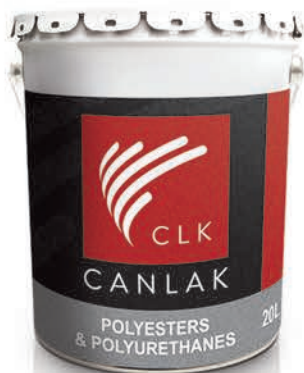
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