FEATURE

GREEN FOCUS:

Compounds, colorants and marking inks

The wire and cable industry depends on raw materials, and that has become a bigger challenge in recent years due to changes and uncertainty over potential requirements as well as pricing/product availability issues. In this feature, which is continued online at www.wirenet.org, industry suppliers of compounds, colorants and marking inks provide their perspectives. It also includes one industry perspective about a "concern" list of chemicals and a purchaser's view of the market.

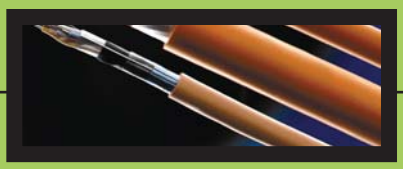
Industry Supplier Q&As

WJI: Has your product portfolio changed in response to increasing demands for industry to take a more "green" approach? Do cablemakers have more "green" interests, and if so, are they willing to pay for it?

Our product portfolio has changed substantially in response to regulatory directives as well as to electronic OEMs adopting a "greener" direction for their products. Since 2008 we have eliminated the use of lead stabilizers as well as all heavy metal pigments in our vinyl compounds. We have developed non-toxic and non-phthalate alternatives for customers interested in going in that direction. Most recently, we have been working to develop a family of vinyl compounds utilizing bio-based plasticizers and stabilizers. There is definitely a greater "green" interest from cablemakers, however, actual conversion has been slow in developing, especially if there is higher cost involved. Cablemakers are not willing to pay more for "green" products unless the end users value this aspect and accept the incremental cost. **Mike Patel, industry manager, wire and cable compounds, Vinyl Division, Teknor Apex.**

CCG has been leading the industry in environmental stewardship since it began producing LAN cable fillers 14 years ago. In its early stages of developing cable fillers for Cat. 6 cables, CCG gained UL approval to use 100% recycled FEP to produce crosswebs, tapes and tubes for these applications. The company then introduced foamed filler products to this market that allowed cable designers to reduce the amount of FEP material used for fillers, reducing the amount of combustible footprint in a finished cable while also achieving higher electrical performance. CCG's latest technology offering, FluoroFoam® compounds, extends the same benefits of using a foamed cable filler to wire insulation as well, so producers of twisted-pair singles and other conductors can now consider using a high-performing FluoroFoam FEP insulation material. Today, about 65% of CCG's cable filler products use recycled materials, and we can integrate recycled materials into products based on customer acceptance and/or product specification. FluoroFoam chemically foamable compounds for wire insulation are also recyclable, and all CCG products use RoHS-compliant material. CCG products can generally help reduce costs because products are made from either a foamed or a recycled material, or both, as compared to a virgin solid material. **David Braun, vice president/managing director, Cable Components Group.**

Ed Fenton displays wire insulated with Cable Components Group's FluoroFoam® at IWCS.


Industry warns DC about EPA 'Chemicals of Concern' list

Last year, representatives from the flexible vinyl industry testified at three briefings before the Office of Management and Budget (OMB), which reports to the office of the U.S. President, about the impact of the EPA's proposal to "list" phthalate plasticizers and halogenated flame retardants (FR) used in flexible vinyl compounds as "Chemicals of Concern." The speakers testified to OMB, which assesses regulatory proposals for their economic impacts and burden on U.S. business. The industry efforts were coordinated by the American Chemistry Council (ACC), the Flexible Vinyl Alliance (FVA) and the Vinyl Institute (VI). Representing wire and cable was David Kiddoo, global business manager for AlphaGary Corporation. Below is his report.

I was one of the industry representatives who testified about the importance of fire safety, physical integrity and long-term life of products made using phthalates and halogenated compounds such as PVC, and I thought it was important for the OMB panel to understand the issues beyond an abstract level. I pointed out all the wire and cable that was visible as well as behind walls, from the HDTVs and video conferencing equipment to the computers and the "wireless" hubs spread throughout their high-tech offices and meeting rooms. It was clear that these influential people did not realize that every one of their electronic gizmos, lighting, security and energy conservation detectors has a wire or cable attached to it.

I explained that there literally were miles of hidden cables behind walls and above ceilings in schools, hospitals, offices and residential buildings, and that it is critical to use materials that can minimize the fuel load contribution to feed a fire. Halogenated materials such as PVC, fluoropolymers and brominated FR plastic compounds inherently provide a high level of fire safety for wire and cable installed in concealed spaces. I told the OMB panel that lead-free, recyclable PVC compounds represent more than half of all materials used in flame-retardant wire and cable, and that it would be a significant technical and cost challenge to meet the same level of fire retardancy and physical performance characteristics with alternate materials. These materials provide the basic "building block" technology for the best balance of fire safety, environmental stewardship, performance and cost.

Going into the briefings, our main concern was that EPA's mere suggestion of expanding the list of "Chemicals of Concern" has already had a commercial impact of influencing people to "de-select" halogenated compounds such as PVC or fluoropolymers. The US Green Building Council (USGBC) recently issued Pilot LEED Credit 11: "Chemical Avoidance in Building Materials," which cites the EPA's "possible" listing of phthalates and halogenated-flame retardants as justification for rewarding the removal of materials such as PVC from building interiors, furnishings, floors, wire and cable and wall coverings. Further, in a letter to Congressman Hodes (D-New Hampshire), the EPA incorrectly states that "listing" these chemicals will "NOT . . . pose any particular burdens on the domestic processors of that chemical ... ."

The FVA claims that no scientific evidence exists to show that these materials provide an imminent or significant health or environmental hazard. Products made with PVC, which is a major user of phthalates and halogenated flame-retardant materials, have been proven safe and acceptable over decades of use. Regulatory actions on chemicals and plastic materials with a proven safety record must be carefully considered for their significant potential economic impact in U.S. commerce, manufacturing, product safety and quality. Available (untested) substitutes do not exist in the quantities required or at favorable cost points. Further, it's possible that these substitutes would, in fact, generate a worse "carbon footprint" and environmental impact than these proven technologies, particularly if they need to be replaced more frequently.

David Kiddoo, AlphaGary Corp.

As a final request, we recommended to the OMB that, rather than support a "de-facto" ban on safe products, it should instruct the EPA to focus on hazardous substances that are *directly* exposed to children and adults, rather than low-exposure building materials that provide important safety, energy efficiency and other performance benefits. The FVA and Vinyl Institute believe that before proposing to "list" any chemicals, there is a need to establish definitive criteria based on sound scientific principles. The VI states that the EPA has not yet defined these criteria adequately. Further, the industry groups believe that once criteria have been established, each substance must be individually evaluated before any action is taken. The criteria should include the products' application and critical properties used to meet U.S. national and local safety codes and standards.

We left the hearings without a sense of what the OMB Panel would do. They did, however, acknowledge that they were impressed with the information we provided on the magnitude of the impact/burden that the EPA proposals would have or already have had on products of everyday use. To their credit, the OMB Panel showed their desire to truly understand the importance of this issue and the real impact on industry jobs, the costs of doing business and the overall safety/quality of these products. OMB is still conducting its deliberations on this matter and a decision is not expected until February 2011 at the earliest.

Ron Goethals, Inhol BV/PTL.

Our portfolio has changed dramatically over the past years to meet the increasing consideration for environmental issues like energy savings, low scrap rates, halogen and low-smoke products. In some countries we had to prove our commitments by introducing environmental quality systems like ISO 14001. Managing our environmental affairs and quality systems has also allowed our company to improve efficiency and to respond to the rapidly increasing demand for a "greener" environment. Our products find their application in the high end of the market. Our customers do not have to pay much more for "green," because by introducing smart formulation techniques and partnerships with lean and keen compounding facilities, we have been able to keep our prices at almost the same level. **Ron Goethals, director, Inhol BV/PTL.**

Yes, this "green" approach is still a growing trend and we've seen inquiries and interest in our recent introduction of bio-based plasticizers and halogen-free compounds. We're in the process of commercializing these products with customers and related pricing discussions are still underway. In North America, the LEED organization is awarding points based on the elimination of phthalates, so customers and end users using our products can participate in that scoring process. In terms of ongoing dialogue in the environmental arena, there was a recent conference on climate change held in Cancun that in part discussed how to integrate "green" components into new or improved infrastructure and how to pay for those improvements. In other words, the conversation continues and is not diminishing. Add to that the continuing price escalation of crude oil and other non-renewable feedstocks, and the need for alternatives is still very much on everyone's mind. **Thorne Bartlett, business development director, Dow Wire & Cable.**

We believe many of our customers would like to move this way, but the reality is that the technology for what is usually perceived as "green" organic chemistry derived from renewable resources rather than from fossil fuels is not yet adequate for the industry. The materials that are available are relatively expensive and have performance deficiencies that largely restrict their utility for wire and cable applications. There will have to be significant improvements in performance and cost for wire and cable makers to move. **Paul Legnettii, vice president/CTO, and Lori Parent, business development manager, Breen Color Concentrates.**

GEM's product line has changed in response to the demands for "green" products. On the traditional (contact printing) side of the business, we have been selling a group of eco-friendly, "green" inks dating back to 1994, that allowed AT&T to help eliminate solvents from their plant. Most ink jet applications in wire manufacturing/wire processing have been done with methyl ethyl ketone (MEK)-based inks, which are readily available, have fast dry times and are compatible with resins, colorants and pigments often used in wire marking. The drawback is that MEK is a regulated VOC, and customers in "non-attainment areas" of the country (not up to EPA clean air improvements) are pressured to reduce or eliminate use of this solvent. GEM has patented a black ink jet ink that is VOC-free and we offer customers a range of VOC-exempt or low-VOC products. GEM also represents KBA Metronic's alphaJET printers that have very low make-up consumption, further reducing VOCs. Our goal is to provide a "green" alternative without losing the performance properties of a non-green product. Contrast, adhesion and reliable performance have to remain constant. In a perfect world, this is accomplished at the same cost to us and price to the customer. We are not always able to keep costs/prices constant. Customers who are truly motivated to "go green" are willing to pay a small premium. **Ramona Krogman, marketing manager, Gem Gravure Co.**

Ramona Krogman, GEM Gravure Co.

We are seeing some interest for more "green" compounds. Many of the requests we receive are merely statements emphasizing a need for more "green" products – although there has been no clear definition yet that indicates what the industry would consider a more "green" product. Inquiries for non-phthalate plasticized compounds have increased during the last year and we have developed a number of new compounds to meet those needs. We are also working on developing FDA grades for power supply cords supplied to the refrigerated food market. Our R&D department is investigating new bio-based plasticizers and the development of low and zero halogen-based materials. **Chris O'Connell, vice president, sales and marketing, Sylvin Technologies.**

We see some interest in non-phthalate vinyl compounds, but as legislation increases around halogens, we see more demand for non-halogenated compounds, such as our ECCOH™ and OnFlex™ HFFR lines. ECCOH halogen-free compounds offer low toxicity and smoke density in the event of a fire. OnFlex HFFR compounds are halogen-free and flame-retardant. **Jennifer Prugh, senior marketing manager, PolyOne Geon Compounds.**

In the past few years, T&T's product line has evolved as our supply partners develop new materials to meet new regulatory requirements (e.g., RoHS, REACH). For example, several years ago Georgia Gulf and ExxonMobil completely eliminated lead as a stabilizer. This affected many of T&T's product offerings. Also, several flame retardant products, including Santoprene TPV and T&T FR TPEs, have been reformulated to comply with RoHS, i.e., phasing out of decabromo diphenyl oxide, the most commonly used and most cost-effective flame retardant in our industry. Georgia Gulf is currently developing "greener" PVCs using renewable, bio-based plasticizers. Customers are willing to pay more if their downstream customers demand alternative solutions or if regulations require alternatives to traditional materials. However, the greatest opportunity for our compound suppliers is to provide "greener" alternatives at little to no cost increase vs. current products. Typically, pricing becomes more competitive once new technology compounds have been accepted in the market place and usage grows for these products. Currently we are working with several cable makers who are developing and marketing "eco" cables using non-halogen containing materials. And if you consider cables for new energy sources to be part of the "green" movement, we see a lot of activity developing materials and cables for projects involving wind turbines and solar energy and the like. **Tom Jordan, president, and John Accorsi, account & product manager, T&T Marketing, Inc.**

Tom Jordan and John Accorsi, T&T Marketing, Inc.

Over 30% of AlphaGary's sales were from products developed in the last five years. Much of this has been due to the evolution of materials to meet "green" initiatives that are a benefit to health, safety and our environment. In 2010, we completed an extensive program to eliminate all lead-based additives from each of our compound formulations and manufacturing sites. Consumers and OEMs are increasingly requesting cable manufacturers and material suppliers to meet evolving TSCA and RoHS proposals eliminating "substances of high concern." In many cases, particularly with innovative new materials, customers will pay a little more for "greener" products, but not excessively, unless there is a legislative or specific OEM/consumer requirement. **David Kiddoo, global business manager, AlphaGary Corporation.**

There has been interest for several years for high-temperature colorants and compounds that are completely free of heavy metals, and over the years our portfolio has evolved to meet these demands. Many of these alternative technologies are indeed more expensive, but generally our customers understand this fact and are willing to pay a slight premium so that we may both comply to the regulations that drive our industry. **Ralph Marcario, director of sales and marketing, and Denise Coyle, sales manager, Chromatics Inc.**

O'Tech continues to meet the challenges put forth by external pressures for products that are less expensive,

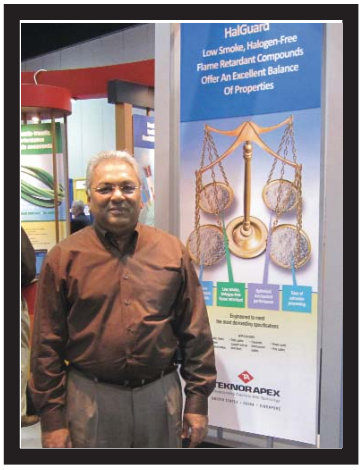
safer, greener and offering better performance. We anticipate this trend to continue and it will certainly lead to newer innovations in the area of compounds. For example, O'Tech recently was given the challenge of developing a flame retardant power and control jacket for the wind power industry with all the constraints of price, regulations, corporate directives and specifications working against achieving the final product. **Jack O'Donnell, CEO, O'Tech Corporation.**

All of Huber's flame retardants and smoke suppressants are environmentally friendly alternatives to heavy metals and halogens. We've seen an increasing number of customers choosing to reformulate in order to eliminate chemicals which are not considered "green." Our products have gained momentum from this trend. **Keith Sorrell, marketing communications manager, Huber Engineered Materials.**

PrintSafe has supplied marking systems for wire and cable for 23 years. We don't make the markers; we make them work for the applications! We provide the inks, the networked control software and peripheral mounting devices to ensure our markers meet all the industry's requirements of reliability, marking quality and operating cost. PrintSafe has established demanding standards to provide superior ink jet marking inks. Our new marking fluids all meet a "green" industry commitment to provide non-hazardous formulations. They greatly reduce the cost of operation of cable, virtually eliminating hazardous waste streams. Our partnership with Domino Printing, and its exciting new W Series ink jet marker platform, brings new features to our wire and cable clients. Our marking fluids and printer platforms provide a most exciting new cable industry ink jet environmental and operational reliability home run. **Tom Hittle, principal, PrintSafe.**

WJI: Are cablemakers more interested in products that exceed requirements but enable them to comply with code requirements/trends (shielding, non-halogens, cadmium-free, VOC-free, etc.) and/or regulatory rules?

Especially for new cable constructions, cablemakers in Europe are indeed actively looking for compounds that exceed the actual requirements. The possibilities are sometimes limited by the price targets that have been set by the same customers. In the Far East and U.S. we see increasing interest from customers that did not previously consider issues like the environment a top priority. It is recognized that there is pressure from the supply chain that inevitably has resulted in more certifications followed by a willingness to continuously improve corporate image as a "green" company. We have never made any compound containing cadmium or VOC and we have always met REACH, RoHS, WEEE and many other international regulatory rules because we were already convinced, some ten years ago, that this would become an issue for the near future. **Ron Goethals, Inhol BV/PTL**



Mike Patel, Teknor Apex.

Many of our customers supply cables for a variety of electronic/electric equipment which could be manufactured and/or shipped anywhere in the world. This requires that their cables are compliant with a range of global customer requirements, resulting in their having to use many more different compounds than before. The REACH Directive with its ongoing review of chemicals and classification as substances of very high concern has made cablemakers much more sensitive to the compliance status of compounds they are using. As business continues to become more global we expect to see ongoing changes to our own and our customers' product offerings. Maintaining pace with evolving regulatory directives as well as customer implementations could present technological challenges, especially if the entire supply chain is not working in unison. **Mike Patel, Teknor Apex.**

Customers are most interested in compounds that meet code requirements and regulatory rules like RoHS, REACH and WEEE. We are seeing some interest in low-halogen content or zero-halogen compounds so we are researching that as well. We expect customers to continue to ask us to develop more environmentally friendly products as a result of existing and new agency regulations, so compliance will continue to be an issue in the future. It will be critical for us to continue to develop products that help customers comply with all of the regulations. **Chris O'Connell, Sylvin Technologies.**

Cablemakers use CCG products to meet fire safety requirements, among other performance enhancements. We don't see a change in trends, rather, a cable maker either chooses to make a more expensive product that complies with the safety regulations or performance requirements, or not. Cable manufacturers pay more for a more expensive fluoropolymer or fire retardant material that must be used to meet requirements, such as a UL Plenum rating or a Mil-Spec requirement, in order to meet demands to reduce the total combustible footprint in a building space or plenum. We do see more expensive LS0H materials being specified if a cable product must be free of halogens in certain market applications. **David Braun, Cable Components Group.**

Compliance with regulations and "emotional" substance concerns are significant drivers for the new products we are developing and launching to the industry. Heavy met-

Paul Legnetti, Breen Color Concentrates.

als have been essentially regulated out of wire and cable applications and we expect those few segments of the industry that still consume color concentrates that contain lead to be using compliant color in the next few years. The list of regulated materials, REACH SVHC as an example, continues to grow and the concern is that more materials routinely used to make color and additive concentrates and compounds will be added. There are also concerns about the continued use of all ortho-phthalate plasticizers in PVC based on the restrictions placed on certain materials of this type. Creation of products that utilize compliant materials while providing the required performance and economy will be an on-going challenge for suppliers to the industry. **Paul Legnetti/Lori Parent, Breen Color Concentrates.**

Ralph Marcario and Denise Coyle, Chromatics, Inc.

The biggest "green" initiatives for compounders the past several years have been related to RoHS and REACH compliance. Several of the more common high-temperature pigments used prior to RoHS were based on heavy metal chemistry, namely cadmium and lead, and elimination of these chemistries from our colorant line required a monumental R&D effort to find compliant alternatives that could survive at typical fluoropolymer processing temperatures. This effort ultimately paid off in the form of a product line that is 100% RoHS/ REACH compliant across all of our global facilities, with technologies that have enabled our customers to achieve this same compliance without sacrificing performance. **Ralph Marcario/ Denis Coyle, Chromatics Inc.**

More customers are beginning to understand the value of selling "sustainable" products. The problem is figuring out which scientific measure should define this. Many OEMs (and, subsequently, cable manufacturers) are succumbing

to activist pressure and potential negative publicity by prematurely switching to over-designed products that appear to cover most hazardous assessments. Many new products and materials are quickly hitting the market without adequate assessment of long-term performance and environmental impact. Too many "green" cabling products have been introduced that had significant problems/failures in use, primarily due to physical or appearance issues. What good is the "greenest" solution if you have to replace the product more frequently? That only results in more waste (aka "carbon footprint" or "environmental impact" Perhaps a "lesser green" product that lasts

Raw material supply

Raw materials pricing is a big focus for suppliers of compounds, colorants and marking inks. Marie Geary, Geary Procurement Consulting Svcs., has been active in this field for more than 20 years, specializing in purchasing/inventory management. Today, she provides analysis services to wire and cable manufacturers. Below, she shares her thoughts on the field. She can be contacted at tel. 401-309-5977 (cell) or fax 401-568-3835.

WJI: Not including metals, how hard is it to predict pricing for raw materials used for wire and cable?

Geary: Predicting the future while looking in the rear view mirror can be very difficult. Materials used for wire and cable are used also in other industries, further complicating the ability to predict trends for raw materials. Our markets are global. For instance, U.S. PVC YTD production had 9% increase for October 2010 versus 2009, but domestic usage actually decreased 9% YTD while export sales increased over 85%. Predicting trends in raw materials is about as successful as predicting the stock market, which for many people can be tricky at best.

WJI: What causes shortages? Is it always about just supply and demand, or are other factors involved?

Geary: There are many reasons shortages can be created. For instance, Dyneon recently decided to exit wire and cable for certain fluoropolymers, and that has resulted in increased lead times for these fluoropolymers. It will take time for the remaining suppliers to ramp up to meet demand. We are seeing more companies exiting markets because of low demand or reduced ROI. Such was the case with Dow discontinuing CPE production and Dupont's decision to stop making hypalon.

Wire and cable companies will only switch to more expensive compounds when either the customer demands a switch or when regulations make it imperative that they do so. That was the case for the elimination of lead in wire and cable compounds, for which customers demanded and to which the industry complied. The European and U.S. markets continue to be apart on flame retardants. U.S. codes require strict flame retardants while European standards require less flame retardant materials but more low-smoke, low-acid gas materials. U.S. companies will continue to supply the halogen flame retardants until regulated by code.

WJI: Are larger customers always better off in terms of sourcing raw materials?

Geary: Volume usually means lower cost but not always. Sometimes to accommodate large demand a long-term contract is required, and that negates one's ability to make spot buys when prices decrease.

WJI: Does the food industry "rule"—that locating a restaurant at a site where there are other such places, rather than none—apply to wire and cable, meaning that compound suppliers themselves are better off with at least a minimum amount of competition?

Marie Geary, Geary Procurement Consulting Svcs.

Geary: Good question. For instance, the cost for copper, the basis for many wire and cable products, has risen to unprecedented levels, but the base cost is the same for all companies. Those that use large amounts of copper can lower costs by producing their own copper wire, and some can even produce their own rod and use scrap copper to further reduce their costs. But not all companies necessarily want a lower material cost, because that can make it more difficult to justify any type of pricing increases to customers.

WJI: Any advice for companies about what they may want to consider doing?

Geary: The wire and cable industry is highly regulated. Most cables require a UL label, making it difficult to change suppliers without a financial cost to the cable manufacturer as well as time. Long term heat-aging and water-resistance testing can sometimes take up to a year to complete. Where ever possible alternate sources of supply should be sought.

I think that it's also important that organizations that have members in the industry, such as NEMA, SPI, WAI and others keep people informed of trends in their industries. Regulatory changes are very important because they can have a significant effect on the industry. Such is the case for the EPA and its current investigation, and possible ban, of PFOA, which would greatly impact manufacturers and users of fluoropolymers. Compound suppliers should also be keeping their customers informed of such changes.

twice as long in performance is actually the more sustainable solution! In the future, we will certainly be looking at the more "optimal" solutions with adequate scientific evaluations to resolve this important balance of performance, safety, the environment and, oh yeah, the cost! **David Kiddoo, AlphaGary Corporation.**

Regarding interest in products that exceed requirements, it really depends on the customer. Some do show interest, and we can help them attain higher standards. Some customers and OEMS set their own performance or compliance targets and we work directly with them to help meet or exceed those targets. We have been seeing more interest from some customers that had not been active in this area. It's natural that some will take a lower risk position as they're not always able to keep up with changing trends and technology and they adapt as they are able. There's also an issue with the high speed of change that sometimes causes issues between the new technology and the ability to adapt to old infrastructure. But overall, we see a continuing interest. It's an education process. People that have lower specifications will see failures earlier, so they'll need to more quickly improve their standards, and put training practices in place as people cycle through jobs. Emerging economies will require some latitude on the experience curve. Improvements in standards will continue to increase as these geographies gain more experience. **Thorne Bartlett, Dow Wire & Cable.**

Thorne Bartlett, Dow Wire & Cable.

REACH, RoHS and WEEE are not only desirable for our customers, they are a base requirement. Most of our customers have regulatory departments that watch and anticipate world wide requirements. This means our quality manager spends a great deal of time staying up to date on trends and pending regulation. We receive a steady stream of requests for statements on our status. Our entire fluids product line is in compliance with RoHS and WEEE. This is for the sake of our customers and our own business. **Ramona Krogman, GEM Gravure Co.**

Many of our customers in Europe are looking to exceed WEEE and REACH requirements as a way to differentiate their products as the safest and most environmentally friendly. RoHS compliant materials are a requirement in any region. For those customers wishing to supply one product globally, the trend toward non-halogenated materials is strong, but we don't see a lot of customers buying them in North America. **Jennifer Prugh, PolyOne Geon Compounds.**

Material selection is a difficult process for any manufacturer in a competitive marketplace like the wire and cable industry. Cable designers are faced with the challenge of selecting a material while trying to balance competitive pricing, regulatory rules (i.e. REACH, RoHS, WEE, etc), code specifications (UL, CSA), corporate initiatives, and governmental regulations for green. This is a daunting task. In turn, this has put added pressure on the compound designers and manufacturers who are continually asked to expand the capabilities of compounds in a tighter framework of available raw materials. **Jack O'Donnell, O'Tech Corporation.**

Huber's portfolio of flame retardants and smoke suppressants have been used in wire and cable applications for many years, and we expect this to continue because our non-halogens are environmentally friendly. We recently purchased the Kemgard® molybdate flame retardant and smoke-suppressant business from Sherwin-Williams and are researching the synergistic value of blending these products with alumina trihydrate (ATH) and magnesium hydroxide (MDH). Also, wire and cable compounders can use Kemgard wire and cable products to replace ammonium octamolybdate (AOM) or partially replace antimony oxide to achieve desirable smoke suppression performance while reducing costs and minimizing regulatory concerns over antimony oxide use. **Keith Sorrell, Huber Engineered Materials.**

Huber Engineered Materials supplies smoke suppressants and flame retardants.

Regulatory rules and requirements are the quickest driving force for change and higher costs in the industry because there are no alternatives. When "greener" products become more cost competitive, industry change will occur very rapidly, as was the case with the conversion from lead to non-lead stabilizers. The "green" revolution will continue until the technology can offer comparable cost products with similar performance spanning the range of wire and cable requirements. Most cable makers are challenged just to meet, not exceed, all the new and changing regulatory requirements, within current product technology and cost constraints, without sacrificing cable performance and reliability. It is not an easy task! From a

performance perspective, "greener" compounds typically do not do everything that the existing, proven technology does. For example, lead stabilizers work very well and were not easy to replace in terms of product performance. As a distributor, T&T has a broad view of material options, so we try to assist our customers to find the best material alternatives. **Tom Jordan/John Accorsi, T&T Marketing, Inc.**

WJI: Where are you focusing your R&D?

In 2011 our R&D activities will be focused on extending our range of moisture cross linkable compounds. In the Far East and even in Europe, cablemakers are applying E-beam crosslinking technology a lot. **Ron Goethals, Inhol BV/PTL.**

In general terms, our efforts are focused on creation of compliant and novel materials that provide customers with the highest value, lowest cost solution. **Paul Legnetti/Lori Parent, Breen Color Concentrates.**

CCG as a company policy spends 25% of its engineering time on new product development in the wire and cable, fiber optic, industrial tubing, and industrial nonwovens market segments**. David Braun, Cable Components Group.**

Huber continues to look at opportunities to expand the performance of its halogen-free flame retardants and smoke suppressants via chemical composition and surface-treatment technology. **Keith Sorrell, Huber Engineered Materials.**

Our R&D focus is mainly on improved performance (adhesion, color, operation in the printer) with reduced environmental impact. **Ramona Krogman, Gem Gravure Co.**

A broad range of cable market segments, from compounds for alternative energy cables in harsh environments to fluoropolymer alternatives to custom blends of PVC with various polymers in order to develop unique properties. **Mike Patel, Teknor Apex.**

Flame retardancy continues to be an area that shows opportunity for improvement. **Jennifer Prugh, PolyOne Geon Compounds.**

We continue to focus on developing colorant technologies that are ever-improving, enabling our customers to achieve better electrical performance, faster line speeds, or more vibrant shades. This is especially true with respect to the colors where heavy metal pigments were replaced a few years ago .**Ralph Marcario/Denise Coyle, Chromatics Inc.**

A display of products offered by Sylvin Technologies,

Regulatory compliance has driven some of what our R&D department is working on. Specifically our efforts to develop phthalate free compounds has come largely from this. **Chris O'Connell, Sylvin Technologies.**

We continue to focus on longer life systems across power and communications applications. **Dow Wire & Cable.**

Our focus is always on developing compounds to provide the best engineering balance of performance versus safety versus environmental impact versus cost. **David Kiddoo, AlphaGary Corporation.** ■

Editor's note: this feature is continued on-line at www.wirenet.org, where it includes more information. To access it, click on *Wire Journal International,* then WJI Extra, then January.

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