



Charlie Buckley, President, next to 6-inch Thermatic® extruder with direct drive technology.

## 2010 President's Address: Successfully Navigating Out of the Recession

*The winds and waves are always on the side of the ablest navigators.*

- Edward Gibbon

Like a ship at sea trying to navigate rough waters, the global recession required us to change course during the past year.

We approached this challenge as a team effort and it is the reason the good ship Davis-Standard is afloat and emerging from this recession stronger than ever. From the onset we took the necessary steps to navigate these challenges without compromising our core competencies

which reside in our dedicated and highly skilled workforce. We also continued to invest in technology, marketing initiatives and capital investment programs to maintain our leadership position.

One key factor that helped us weather this storm was our strong backlog. Another factor was our attention to key performance indicators which provided an early warning alert prompting us to make significant inventory and cost reductions starting in the fall of 2008. We spread the "pain and suffering" among all employees with salary reductions, voluntary furloughs, short workweeks, suspension of retirement benefits and other belt tightening initiatives. Due to these timely actions we have been able to retain the vast majority of our core workforce throughout this recession. Now that we are in the recovery phase of this economic cycle, we can grow our business without incurring excessive costs and inefficiencies

associated with re-hiring and re-training our workforce.

Our strong cash flow allowed us to continue investing in our business. Two examples were the blown film lab line in New Jersey and a new enterprise resource and planning system. The blown film lab line is available for trials to support growing markets in stretch hood, lamination films, shipping sacks, GP film and technical films. This includes research with biodegradable films and further development of applications requiring higher rates and tighter gauge control. The computer system provides timely, accurate, and complete information contributing to our operating efficiencies and ability to better serve our customers.

While many companies cut marketing activities in the midst of a recession, we maintained our programs. We believe marketing is essential to reach out and stay

**2010 Address** continued on page 6.

## Quality Wireline & Cable Advances Electro-Mechanical Cable Manufacturing

Innovation, precision and excellence are the driving forces behind Quality Wireline & Cable, Inc. (Quality) of Calgary, Alberta, Canada. Established in 2008 by an experienced team of engineers, Quality manufactures electro-mechanical cables for the global oil and gas industry. Last summer, the company installed a Davis-Standard wire and cable system for manufacturing cables with the structural and electrical integrity to better withstand the severe conditions within oil and gas wells. Since installing the line, Quality's products have surpassed

existing manufacturing standards for wireline cables in terms of quality and customer value. In addition to a superior cable, Quality is able to offer competitive pricing via improved processing rates, minimal waste, greater product consistency and reduced manufacturing costs.

"Our cables spool in and out of oil and gas wells on a daily basis and are up to six miles long. The environment is harsh with temperatures exceeding 400 degrees (Fahrenheit), pressures up



to 25,000 psi, and tensile loads over 15,000 pounds," explained Thakur Sekhon, Quality's Technical Manager. "To complicate matters, wellbore fluids can be highly

**Quality Wireline & Cable** continued on page 5.

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# In-House Extrusion Helps Business Grow Despite Recession

A Davis-Standard extrusion system has moved a customer's business to the next level, despite a difficult economy. Installed in January 2009, the line has enabled the customer to bring profile production in-house. With the new system, the customer has cut costs, filled orders more quickly and improved both quality and consistency. These advantages have resulted in more

business and greater flexibility to respond to market pressures while maintaining a healthy bottom line.

Davis-Standard supplied a 2-inch (50mm) Super Blue® extruder for running dual profiles. The system included a volumetric feeder, profile die, cooling trough, measuring system and dual winder. Depending on the type of profile, the line

is capable of running in excess of 400 feet (122 meters) per minute. Additionally, Davis-Standard personnel provided extrusion training and ongoing technical support. The customer was new to plastics extrusion, so this was especially beneficial.

According to the customer, "Bringing extrusion in-house and manufacturing our profiles immediately added a new

dimension to our company. With the help of Davis-Standard staff, we went from zero to full production in less than a week. We would definitely buy more Davis-Standard equipment in the future."

For more information about Davis-Standard systems for profile applications, contact Wendell Whipple at [wwhipple@davis-standard.com](mailto:wwhipple@davis-standard.com).

# Foam Capabilities Provide Multiple Options for Efficient Processing

Over the past few years, Davis-Standard has expanded its foam technology to improve efficiencies and capabilities for processors in the food packaging, automotive parts, graphic arts and industrial product markets. These improvements have been especially beneficial in a challenging economy where cutting costs is essential. The many options available include specialty dies, long L/D extruders, single screw tandem foam systems, counter or corotating twin screw foam systems, new feedscrew designs, supervisory controls and a range of downstream equipment. Capabilities encompass high output processing of PS, LDPE and PP foam. Hydrocarbon, atmospheric, and dual gas systems are available for high accuracy metering of blowing agents.

These technologies have been highly successful in the field and three of them are outlined below. They include an AB coextrusion die, 94mm, 36:1 L/D counter-rotating twin screw foam extruder and new feedscrew technology.

## **AB Coextrusion Die**

The AB coextrusion die provides multiple orientation benefits, a 4-to-1 blow-up/stretch ratio and requires fewer blowing agents to achieve a high-density product. This die, as with other ABA and ABC foam die technology offered by Davis-Standard, is capable of processing

rigid and foam structures simultaneously. Davis-Standard is the only equipment supplier to provide complete systems for rigid on foam extrusion technology. The AB, ABA and ABC coextrusion die designs are used for applications such as barrier packaging, absorbent foam technology and meat tray processing.

## **94mm, 36:1 L/D Counter-Rotating Twin Screw Foam Extruder**

Davis-Standard's 94mm, 36:1 L/D counter-rotating twin screw foam extruder was developed specifically for high-output PE foam processing. This extruder allows for melting, mixing and cooling with minimum shear in material. The extruder's feedscrew is specifically designed to bring the material to the desired temperature with a quick cool-down, essential in foam extrusion for maximum density reduction.

## **New Feedscrew Design**

A recent feedscrew design for the tandem foam extrusion system increased



Davis-Standard's foam systems are engineered to improve efficiencies for food packaging, automotive parts, graphic arts and industrial product applications.

output rates by up to 20 percent. Davis-Standard's high-output screw demonstrated a higher energy efficiency of as much as 40 pounds (18 kilograms) per horsepower during operation. This screw takes that a step further with a dynamic seal design that prevents gas from leaking in a tandem extrusion arrangement. The screw also minimizes shear while providing efficient cooling and mixing capabilities.

Foam extruders are available in 2 1/2- to 16-inch (64 - 400mm) diameters with L/D ratios of 30:1 and higher. Dies are offered with remote die lip gap and choke

adjustment, coextrusion technology, and fully automated die lip gap and choke assembly with PLC control and recipe storage. Downstream options include cooling and sizing mandrels, dual and single "S" wraps, winding systems and processing equipment. In addition, Davis-Standard can provide turnkey product solutions and weight reduction solutions for solid sheet applications.

For more information, contact Steve DeAngelis at [sdeangelis@davis-standard.com](mailto:sdeangelis@davis-standard.com) or Fred Schrafft at [fschrafft@davis-standard.com](mailto:fschrafft@davis-standard.com).

# The Effect of Layer-to-Layer Coefficient of Friction Properties on Winding

By R. Duane Smith, Product Manager – Specialty Winding, Davis-Standard, LLC



R. Duane Smith

The goal of every film manufacturer is to consistently wind quality rolls to ensure that their printing and converting customers can produce defect-free products for their customers. The film's layer-to-layer coefficient of friction (COF) properties have a major effect on the tension, nip and torque (T.N.T.) principles required to produce the desired roll hardness without roll defects. In general, films with a layer-to-layer COF value of 0.2 to 0.7 will wind well. However, being able to consistently wind defect-free rolls of high-slip or low-slip (low COF or high COF) typically presents major winding challenges.

## **Low Coefficient of Friction Films**

High-slip films have a low layer-to-layer COF, generally less than 0.2. These films frequently have inner web slippage or cinching problems during winding and/or in subsequent unwinding operations. They also present roll handling problems in between these operations. The inner web slippage can result in defects such as web scratching, dishing, telescoping and/or starring roll defects. To combat this problem, low COF films need to be wound as tight as possible at the core, usually at high torque. The torque then needs to be tapered down to a minimum of three to four times the core OD to build the desired roll hardness using the nip winding principle. Air is never our friend when winding high-slip films! These films always need to be wound with uniform nip loading to prevent air from entering the roll during the winding process.

## **High Coefficient of Friction Films**

Low-slip films have high layer-to-layer COF, generally greater than 0.7. These films will often have blocking and/or wrinkling

problems. When surface winding these films, "out of round" rolls can be expected at low winding speeds and roll bouncing can be a problem at higher speeds.

As explained by well-known consultant and columnist Tim Walker of TJ Walker + Associates, Inc., "This is due to fact that the outer layers of a winding roll require a small amount of sliding action as the layers first enter the winding roll. This sliding action produces in-wound tension as the air following the web is ejected from the nip or out the sides. If the full width slides, this is not a problem. But, if one lane or spot sticks and the rest slide, then a local shear stress will develop near the sticking point. This local shear may form a small buckle or soft wrinkle in the top layer. In some products, a small bump or ripple can be wound over and ignored, but in other products (especially optically clear films), the next layer will not smoothly wind over a bump or ripple, but will instead conform over the bump, producing a slightly larger bump or ripple. As additional layers are added, like a rolling snow ball, the defect will often get

bigger with each turn."

These defects are commonly called slipknots or slip wrinkles. High COF films are best gap wound with a minimum gap between the following roll and the winding roll. Spreading needs to be provided as close to the winding point as possible. A flex spreader covering on the following roll has proven to be successful on a number of high COF winding applications.

To view Smith's paper in its entirety, visit [www.bc-egan.com](http://www.bc-egan.com). This paper, as well as many other technical documents, can be found within the "Company Information" section of the website. Smith is also the author of the TAPPI book entitled *Roll and Web Defect Terminology*. This book has been recognized as the most comprehensive reference guide with regard to defects in the web handling industry. For more information visit [www.tappi.org](http://www.tappi.org) and look under Educational Resources/Books and CDs/Books/Documents and click on *Roll and Web Defect Technology*.

## John Christiano Recognized for Service

John Christiano, Davis-Standard's Vice President of Extrusion Processing Technology, was recently honored with the "Outstanding Service Award" given by the Extrusion Division of the Society of Plastics Engineers (SPE). Christiano was recognized for his service as technical program chair for the 2008 ANTEC Conference, and for serving as chairman of the Extrusion Division in 2008-09. He has served in various capacities within SPE for the past 12 years.

Some of the Division's accomplishments during Christiano's chairmanship include:

- Production of Extrusion Division sessions during ANTEC 2009

- Pinnacle Gold Award for outstanding membership service, Extrusion Division
- Increased student chapter participation, 2008-09
- Launch of "Extrusion Wiki," an innovative question and answer tool
- Mini Tech Program, May 2009
- Coextrusion Topical Conference, October 2008

For more information, visit the SPE Extrusion Division website at [www.spexdiv.org](http://www.spexdiv.org).



John Christiano was honored for his leadership and service to the SPE Extrusion Division.

# Checkpoint Installs Integrator C for Better Line Performance

A recent Integrator C control system installation has improved efficiencies for the Checkpoint Systems, Inc. facility in Ponce, Puerto Rico. The Integrator C, installed last summer, replaced an existing CMR supervisory control system on a 20-year-old extrusion/lamination line. Since the install, Checkpoint has benefited from the intuitive operator interface and reduced downtime, which is critical for the company's high output business. Checkpoint is the world's leading provider of radio frequency (RF) based loss prevention systems for the global retail industry. The company's facility in Ponce manufactures a variety of radio frequency tags used for article surveillance.

"The installation of the Integrator went well. After a couple of weeks of fine-tuning

and learning new parameters, our results were equal or better than with the CMR," said Luis Alvarado, Manufacturing Engineer at Checkpoint's Ponce facility. "This system has a lot more features and gives us the flexibility to do software upgrades and troubleshooting remotely, which reduces our downtime."

The Integrator C is a direct replacement for the Egan CMR supervisory control unit. It is a single-point control system that provides the functionality of the CMR while greatly enhancing many features such as recipe management, historical data trending and alarms. The Integrator C also features a new PLC drives interface, improved temperature controls and enhanced gauge control based on the age of the existing

gauge system.

Along with the CMR replacement, Checkpoint also purchased a new drive system from Davis Standard. Converters have multiple replacement options to best accommodate system requirements and budget parameters. The first option includes a DC drives only upgrade that re-uses the existing motors. The second option includes an upgrade to AC drives and motors, which equates to increased savings in the long run.

For machines with PLC's older than 15 to 20 years, several upgrades are available to improve machine performance, minimize downtime and provide added process control capabilities based on the converting application. Modern HMI technology allows the operator easy access to set points and

process data from multiple locations along the machine.

In the case of Checkpoint, the system was customized to handle the complexity of the company's product. Davis-Standard worked with another vendor, NDC Infrared Engineering, to ensure that all software and equipment was functioning in concert with the new system. According to Alvarado, the machine stabilized much more quickly with the Integrator C than when the CMR was first used. He also appreciated Davis-Standard's support throughout the process.

For more information about Checkpoint, visit [www.checkpt.com](http://www.checkpt.com). For more information about replacing an existing CMR system with the Integrator C, contact Frank Orsini at [orsinif@bc-egan.com](mailto:orsinif@bc-egan.com).

## Extrusion Tips: Feedscrew and Barrel Considerations

By Jerry Warren, Vice President – Aftermarket, Davis-Standard, LLC

When looking for ways to improve efficiencies and save on overhead costs, it's important to remember the feedscrew and barrel. Normal extruder operation over a period of months or years causes wear on the screw flights and, to a lesser extent, on the inside diameter of the extruder barrel. This wear can, and generally will, cause declining outputs. This is especially true for low viscosity polymers that are exceedingly sensitive to wear at relatively high temperatures and/or pressures. Some of the factors affecting screw and barrel wear include:

- Screw, barrel and drive alignment.
- Straightness of screw and barrel.
- Uniformity of barrel heating.
- Materials being processed.
- Abrasive fillers, reinforcing agents and pigments.
- Screw surface materials.
- Barrel liner materials.
- Combination of screw surface and barrel liner.
- Improper barrel support.
- Excessive loads on barrel discharge end; heavy dies.
- Corrosion caused by polymer

degradation.

- Corrosion caused by additives, such as flame-retardants.

It is essential to consider the economic consequences of screw wear. There are significant amounts of hidden cost associated with the screw and barrel that can reduce profits. To put it in perspective, the dollar value of the product processed by a typical screw in 24 hours should materially exceed the price of that screw. If either maximum RPM or melt temperature limits the extrusion line, a processor could potentially lose a significant amount of productivity. A new screw can yield more product and use less energy per pound than the old screw without increasing labor or overhead costs. The return on investment in replacing even a modestly worn screw can be very attractive.

In addition to wear, another factor to consider is a change in resin formulation or the product being manufactured. This may cause a decline in production rates because the screw being used is not optimized for that application. Investing in a new feedscrew for a modified application will prevent you from running at less than peak

performance and will provide the potential for even greater returns.

There are two primary methods for evaluating output loss caused by screw wear. A precise method is to compare current screw output with a production benchmark reference output established when the screw was new. Using this method, output rates and product quality can be measured over time to determine efficiencies. An approximation method involves measuring the screw, calculating the resultant added screw-to-barrel clearance and estimating the output loss from the added clearance. This technique, however, does require some downtime while the screw is being removed, cleaned and measured. In any case, we recommend periodic inspections to determine if the screw and/or barrel need to be replaced before their conditions result in a severe production decline. It is good practice to measure screws at least every six months to determine if wear has occurred. However, this period could be shorter or longer depending on your operating conditions. The following guidelines provide a rough idea of when a screw and/or barrel may

need to be replaced.

- .010" to .015" plus the original screw/barrel clearance is indicative of wear, but the condition is not critical.
- .020" to .030" plus the original screw/barrel clearance is indicative of wear, and consideration should be given to replacing the extrusion screw, the barrel or both.
- .040" to .050" plus the original screw/barrel clearances is indicative of severe wear and it is essential to replace the screw, the barrel or both.

Our Aftermarket department is committed to helping you run the most efficient operation possible. We can measure screws or barrels and conduct plant audits to ascertain what can be done to improve your productivity. Davis-Standard offers you quality products, 24/7 service, and a first-class Technical Center to help you get the most out of your extrusion equipment. Please feel free to contact me at [jwarren@davis-standard.com](mailto:jwarren@davis-standard.com) or call our toll-free Parts and Service phone number 800-480-8105 if you are interested in any of these services.

# Exclusive Alliance Brings Coreless Stretch Film Systems to Market

Davis-Standard, LLC and NO.EL® s.r.l. of Italy announced that the two entities have signed an exclusive agreement to jointly supply inline coreless stretch film systems to the converting industry. This alliance combines NO.EL's coreless winding technology with Davis-Standard's extrusion and processing capabilities to provide high-speed coreless and pre-stretch film systems in widths up to 3 meters (120 inches). Plans for introducing lines with wider widths are currently underway. Equipment solutions for inline coreless and thin core winding of conventional stretch film as well as inline pre-stretching are also available. Using this equipment, processors can manufacture multiple rolls of slitted film using bleed-trim or bleed-less technologies.

"We are pleased to be working with Davis-Standard to offer a coreless winding package to the stretch film market. Our combined technologies create a green option that reduces carbon, production waste and costs," said Roberto Colombo, NO.EL's Vice President of Sales. "Eliminating cores can save as much as \$360 of the cost

per pallet of 360 hand rolls wound on 2-inch (50mm) conventional size cardboard cores. Coreless wound rolls are also smaller in size for the same amount of film, making them easier to handle and cheaper to transport."

NO.EL's inline coreless winders enable processors to produce conventional cast stretch film for hand and/or machine wrap at line speeds up to 700 meters per minute (2,300 feet per minute) in widths from 1 to 3 meters (40 to 120 inches). Line speeds up to 1,100 meters per minute (3,600 feet per minute) are also possible using NO.EL's inline pre-stretch technology in conjunction with Davis Standard cast stretch lines. As validation, NO.EL's coreless and pre-stretch technology has been proven on over 300 off-line, start-stop and continuous rewinding machines. Higher line speeds of over 1,000 meters per minute (3,200 feet per minute) are necessary in pre-stretch film applications to produce thinner films of 7 to 8 microns, and to ensure the line's potential extrusion capacity without sacrificing output.

In addition, NO.EL's patented air-floatation mandrel expands the finished film roll, allowing it to be removed from the core shaft effortlessly without sticking or twisting film. Sequential porting of the air used to float the film off the shaft allows for wider width, multi-roll winding on a single shaft. The simplicity of this design makes this mandrel one of the strongest and easiest to balance on the market.

According to Davis-Standard Executive Vice President Hassan Helmy, the Davis-Standard and NO.EL alliance translates into strategic opportunities for customers.

"There are several coreless suppliers, but NO.EL is the only one with proven inline and off-line production success," explained Helmy. "NO.EL's patented technology and many installations convinced us that their company was the most advanced and reliable platform for Davis-Standard customers looking to migrate to a greener, advanced coreless solution."

NO.EL's coreless winders integrate well with Davis Standard's line of Black

Clawson Converting Machinery stretch film equipment. These lines have been proven to run in excess of 670 meters per minute (2,200 feet per minute) on film as thin as 10 micron/40 gauge. Davis-Standard and NO.EL will customize each installation based on customer requirements.

Helmy added, "The pre-stretch technology, either coreless or with thin cores, improves processing efficiencies as well as roll quality. Not only does coreless, pre-stretched hand-wrap roll save wrapping material, but it allows for a consistent wrapping force around the package. The roll is less prone to damage if dropped, which minimizes subsequent film breaks as a result of a damaged roll edge. There are so many advantages, and we look forward to the benefits this technology will provide customers."

For more information about NO.EL, visit [www.noel-automation.com](http://www.noel-automation.com). For more information about Davis-Standard's line of converting machinery, contact Christine Maxam at [maxamc@bc-egan.com](mailto:maxamc@bc-egan.com) or visit [www.bc-egan.com](http://www.bc-egan.com).

## Quality Wireline & Cable continued from page 1.

corrosive and gaseous. Any defect in manufacturing can wreak havoc for our customers. We've combined the best ideas with the best technology to ensure the mechanical properties of our cables stay intact while continuously transmitting problem-free data from down-hole instrumentation. Davis-Standard has been a key partner in helping us achieve these goals."

Quality selected Davis-Standard after an extensive review of available extrusion technology, including capabilities for processing high-temperature FEP at tight tolerances. Davis-Standard custom engineered the line to meet the rigorous demands of Quality's multilayer process. This includes two layers of copper, one layer of plastic and two layers of steel wire. Quality's electro-mechanical cables utilize either a single conductor or a bundle of conductors surrounded by a dual shell

package for mechanical strength. The diameter, wall thickness and concentricity of the extrusion are essential to obtain a high quality cable before the armoring process is applied.

To address accuracy, the Davis-Standard system was equipped with technology that continually adjusts diameter requirements, maintaining tolerances within one one-thousandths of an inch. This precision is essential because any minor irregularity is compounded with each additional layer. The line has also reduced waste at the front and back end of the process, and operates at speeds nearly double the industry standard. System components such as the shaftless payoff and take-up, extruder, feedscrews, vacuum pump, multi-pass capstan and MESA III drive and line control were modified to address unique technical specifications.

"Our mission is to exceed customer

expectations and avoid being another 'me too' company," said President Kirby Jabusch. "Due to the outstanding efforts of our engineering staff and partners like

Davis-Standard, we've incorporated the highest technical and quality standards. We adhere to strict guidelines, qualifying and testing each raw component during the manufacturing process. This means fewer failures, minimized risk for clients and an improved bottom line for everyone involved. We are producing the closest thing to a perfect cable."

Sekhon added, "We most appreciate Davis-Standard's professionalism. Their experienced and knowledgeable personnel



The Davis-Standard system has helped reduce waste while operating at speeds nearly double the industry standard.

did an excellent job of helping us design, build and commission a new generation extrusion line."

For more information about Quality Wireline & Cable, contact Sekhon at [tsekhon@qualitywireline.com](mailto:tsekhon@qualitywireline.com). For more information about Davis-Standard's wire and cable systems, contact Larry Fitzgerald at [lfitzgerald@davis-standard.com](mailto:lfitzgerald@davis-standard.com).

in touch with customers. We have continued to participate in important tradeshows, consistently sending out news to the trade publications, and publishing our quarterly newsletter, the *Keystone Review*. Our NPE booth and Davis-Standard representatives presented a first-class image during this show and we were very pleased with the results. Despite attendance being down 30 percent, we generated excellent leads and numerous new orders. The same was true with our participation in other trade shows such as the Rubber Expo, CPP, Chinaplas, Plastindia, Saudi Plas, Interwire and other important trade shows and meetings around the globe.

We focused additional resources on export markets and experienced substantial growth. For example, Extrusion Systems ("ES") has sold PS foam lines into South America and the Middle East, a PS co-extrusion thermoformable sheet line into South America, and multiple lines for high quality elastomer hoses and resin quality control applications into China. Medical tubing continues to be a bright spot for ES, nearly doubling sales from previous years. This segment has been particularly active in Mexico and Asia. Converting Systems ("CS") experienced increased sales activity in South America, the Middle East and Southeast Asia with cast stretch, PP, and embossed film lines as well as specialty extrusion coating and blown film lines.

We continue to invest in technology that will extend our leadership position in key markets. We reached an agreement with NO.EL® s.r.l. (discussed in this *Keystone*) to



The blown film lab line in New Jersey is being used for trials to support markets in stretch hood, lamination films, shipping sacks, GP film and technical films.

bring coreless winding capabilities to our stretch film product line. Additionally we are working to bring an integrated solution to the downstream automation of these lines all focused on reducing our customers' costs and improving their efficiencies. In the extrusion coating product area, we lead the industry in the processing of bio-resins working with a range of suppliers and customers to come up with a "day-in-day-out" manufacturing process. As CS customers deal with a volatile energy market, we are looking at ways to help with higher efficiency gearless extruders, ultra-low work screw designs and higher efficiency dryer designs. Finally, CS is excited about our growth in new market areas like photovoltaics, lithium ion batteries and high definition display technology.

In the extrusion systems area, we sold lines for non-dried PET bottle flake thermoformable sheet using MRS extrusion technology. In our lab, we have conducted studies of direct drive extruder performance versus a conventional AC gearbox and drive extruder. Our findings, such as a 15 percent saving in energy costs, will be presented at ANTEC 2010. We also made advancements with DSB® VI feedscrew technology. This has optimized performance for the groove

feed extruder platform when processing PE-100 grade resins for pipe extrusion. Studies show we are achieving excellent mixing with masterbatch blends. We've also focused on green initiatives by participating in solar energy, new battery technology and lightweight composites applications.

**The bottom line is that you can continue to expect the same high level of service from those within our company whom you know and trust.**

In closing, I want to emphasize that Davis-Standard is in good financial health and will continue to invest in technology in keeping with our vision of "Converting customer ideas into successful products." The worst of this recession is behind us and we are well into the recovery phase. As we navigate into smoother waters, please know that we appreciate your business and your confidence in us. We look forward to 2010 in the hope that prosperity will spread to every corner of our industry. As always, if you have questions or concerns, please do not hesitate to contact me at charliebuckley@davis-standard.com. Thank you.

## UPCOMING EVENTS

Davis-Standard, LLC will be participating at the following tradeshows and seminars.

JANUARY

### Interplastica

January 26-29, 2010  
Moscow, Russia  
Booth FD71

FEBRUARY

### MD&M West

February 9-11, 2010  
Anaheim, California - USA  
Booth 1265

### SPE Polyolefins

February 21-24, 2010  
Houston, Texas - USA  
Booth 61

### CEMA Slitting and Winding

February 23-24, 2010  
Chicago, Illinois - USA

MARCH

### Plastics Recycling

March 2-3, 2010  
Austin, Texas - USA

### Converter's Expo

March 4, 2010  
Greenbay, Wisconsin - USA

### International Battery Seminar & Exhibit

March 15-18, 2010  
Fort Lauderdale, Florida - USA

### ICE China Show

March 17-19, 2010  
Shanghai, China  
Booth 1A03

### AMI Polyethylene Films

March 18-19, 2010  
Daytona, Florida - USA

### Plastic Extrusion Asia

March 29-30, 2010  
Kuala Lumpur, Malaysia

APRIL

### Basic Extrusion Seminar

April 7-8, 2010  
Pawcatuck, Connecticut - USA

## Davis-Standard®

To update your *Keystone* subscription information with new addresses, contact names, e-mails, etc., please contact Wendy Smith at [wsmith@davis-standard.com](mailto:wsmith@davis-standard.com).

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