

# VISION



**04** Window with Twintex® Reinforcement Wins Innovation Award



**05** Stratiforme Helps High-Speed Train Save Weight and Energy



**06** Protecting Rescue Equipment



Think  
differently

# EDITORIAL

## A NEW WORLD WHERE TEAMWORK IS CRITICAL



Many of the conversations I hear today are about the economy. People everywhere are asking: "How bad will it get? When will it turn around? What can we do to get through this downturn?"

While we are certainly in a difficult economic period – clearly the most severe in our business careers – I believe we are experiencing more than a cyclical downturn. In my view, this is not a brief storm to be weathered while waiting for the sun and fair breezes to return. This is more like "global economic climate change" that requires a fundamental transformation in the way we do business.

I am not alone in thinking this way and recommend reading a brief item on TomPeters.com written by consultant and author Steve Yastrow titled, "This Is Not a Recession." Yastrow asserts that "everything is different now."

"If you think of it as a recalibration, you will be motivated to focus on what you have to do differently," wrote Yastrow on Jan. 7. "The way your business generates results is different, now. Your customers think differently, now. Your customers care about different things, now. Your customers act differently, now."

"Your customers may actually be different people, now. Customers aren't disposable anymore; more than ever, you have to create sustainable customer relationships," Yastrow wrote.

At Owens Corning, we continue our focus on innovations that can transform our business. We are working with our customers more than ever before. We are leveraging our global presence to serve customers locally and efficiently. We are being flexible, listening to our customers and adapting to changing conditions in the global economy and marketplace.

This magazine includes many examples of teamwork with our customers. Tell us how we can work with you to overcome the challenges we both face.

A handwritten signature in black ink that reads "Chuck Dana". The signature is written in a cursive, flowing style.

Group President  
Composite Solutions Business

## 03 OCV™ Businesses at JEC Composites

JEC is one of the world's largest trade shows for composites. The 2009 edition – March 24-26 in Paris – will be the organization's 44th show for the industry.

"We look forward to seeing our customers," said Arnaud Genis, vice president and managing director, Europe, OCV™ Reinforcements, Global OCV™ Technical Fabrics and Specialties.

"With the global economy going through such a challenging time, I am sure we will have much to discuss. We have been helping our customers for some time now, of course, but the JEC Show will give us a chance to discuss face-to-face what more we can do to help each other as teammates," said Genis.

Innovative, value-added products featured on the company's stand this year include:

- High-performance reinforcements including ShieldStrand™ roving and fabrics for ballistic applications, WindStrand™ reinforcements for wind energy, FliteStrand™ products for aerospace and XStrand™ materials for industrial applications

- A JEC-Innovation-Award-winning Twinea® window profile from Bouvet and Lorillard, made with Twintex® thermoplastic and fiberglass reinforcements

- Single-end rovings for pultruded and filament-wound electrical insulators

The OCV businesses will also show their comprehensive range of solutions for the water distribution, transportation and consumer markets.

Gilles Rocher, marketing manager for key processes at OCV Reinforcements, will join Vincent Marhem, research and development engineer at Stratiforme Industries, in a presentation during the Rail and Road Transportation Forum, 2:30 to 5 p.m. Wed. March 25. Gilles Rocher and Vincent Marhem will discuss the development of a hatch cover for the engine compartment of a high-speed train using the resin transfer molding process.

See other pages in this magazine for more about many of these topics.



## 04 Window with Twintex®

## Reinforcement Wins Innovation Award

During the JEC Innovation Awards presentation in Paris this spring, representatives of five companies will accept one of the composites industry's highest awards for a window application that reduces processing costs and improves product performance – Bouvet and Lorillard companies, IDA, Rossi Stamp and OCV™ Reinforcements.

The award in the building and construction category is for Twinea®<sup>(1)</sup> technology, which is used to make window lineals with Twintex® reinforcements. Combining Twintex material with PVC eliminated the need for steel inserts to strengthen the parts, which allowed the French manufacturing firms Bouvet and Lorillard to eliminate a separate insertion step from the process. Removing the steel also improved the energy efficiency and comfort of the finished windows because metal is no longer in the product to act as a thermal bridge or conduit for the movement of heat.

“ We are thrilled to have this technology recognized by JEC,” says Jean-Marc Sivry, production and R&D leader, Lorillard. ”



“It required a lot of teamwork to achieve this breakthrough but the result is an improved product for the homeowner. We are now adapting the process for new products and technologies to reinforce thermoplastic lineals, especially for large dimensions and colored profiles.”

Jean-Marc Sivry says the new process is somewhere between pultrusion and extrusion, and allows reinforcing locally with Twintex material only where necessary. The profiles are then cut and assembled using standard methods.

The new profile manufacturing process simplifies the work without affecting the plant and equipment for window production, and affords great profile design freedom. The windows are stiffer and there are no thermal bridges short-circuiting the energy efficiency of the PVC. The technology can be applied to all types of thermoplastic profiles.

Pre-development work was done by OCV Reinforcements at the company's RandD centre in Chambéry, France. Twinea profiles were designed by the IDA agency and Rossi Stamp produced the tooling.

To learn more about Twinea technology, visit [www.twinea.fr](http://www.twinea.fr).

<sup>(1)</sup>Trademark owned by Etablissements Lorillard, France.”





## 05 Stratiforme Helps High-Speed Train Save Weight and Energy

The railway industry is growing in Europe after the European Union set tougher CO<sub>2</sub> reduction targets and people realize that environmental issues are critical.

The industry is also thinking about sustainability and increasingly turning to composites as a weight- and energy-saving opportunity with better value than traditional material systems. A good example of this is a lateral cover or engine compartment door made by resin transfer molding (RTM) at Stratiforme Industries, Bersee, France. The part is for the country's newest high-speed train.

Known locally as the TGV<sup>®</sup> <sup>(1)</sup> (train à grande vitesse, French for "high-speed train") France's high-speed rail service was developed in 1981 and has since expanded to connect cities across France and in adjacent countries. It set the record for the fastest wheeled train, having reached 574.8 km/h (357 mph) on April 3, 2007. TVG also holds the world's highest average speed for regular passenger service.

The composite part from Stratiforme was developed to address very demanding needs in terms of stiffness, impact resistance, dimensional stability and fire resistance.

"RTM was clearly the best choice for the part," said Vincent Marhem, research and development engineer at Stratiforme Industries. The process allows us to make the required series of parts with consistent dimensions and performance, which are critical factors for this application. We can impregnate the glass reinforcements with a highly filled resin while keeping the glass content at a high ratio."

The application uses woven roving and Uniconform<sup>®</sup> mat from OCV<sup>™</sup> Reinforcements.

Gilles Rocher, marketing manager for key processes at OCV Reinforcements, said the lateral cover is often subjected to high-impact forces of stones, birds or other projectiles hitting the part when the train's speed exceeds 300 km/h. The impact resistance is especially critical for that part and it must be replaced regularly.

Vincent Marhem and Gilles Rocher will discuss the application at JEC Composites 2009 during the Rail and Road Transportation Forum, 2:30 to 5 p.m. Wed. March 25.

For more about Stratiforme Industries, visit [www.stratiforme.com](http://www.stratiforme.com).

<sup>(1)</sup> TGV is a registered trademark of SNCF, the French national rail operator

## 06 Protecting Rescue Equipment



Imagine making a container for items weighing up to 800 kilograms (1,760 pounds) that must survive being dropped up to 55 meters (180 feet).

"Over time, we have tested various plastics but they have never been strong enough in the thickness we require," says Morten Halfdan Petersen, managing director Thailand. "Plastics alone would be much too thick."



Now add protection from salt water and corrosive chemicals, and make it usable in wet and slippery conditions. Quick: What material do you use?

For Viking Life-Saving Equipment, Esbjerg, Denmark, the answer is fiberglass-reinforced plastics. Viking uses composite materials to make containers that protect rafts and other rescue equipment aboard marine vessels and offshore installations such as oil rigs.

Viking began protecting lives 45 years ago by producing life rafts for fishermen on the North Sea. They were an almost immediate success. The company soon began producing life-saving equipment for other markets and over the years its reputation for quality products fueled an international expansion. Today, Viking is a global enterprise with a comprehensive range of safety and rescue products for the maritime sector.

The company started using hand lay-up composites in 1966. Viking added vacuum assisted resin infusion molding (VARIM) in 1997, which is the process they use the most today.

Viking containers are designed with several unique features. A special shell overlap design gives a secure watertight fit to protect against the elements. The rim is designed to provide a solid easy grip for faster and easier handling – even in slippery conditions. A ribbed design adds stability to the composite shell.



The company also now uses composites to make a series of "man-overboard boats," which can be quickly deployed for rescue operations.

With manufacturing operations in Denmark, Norway and Thailand, Viking depends on the global presence of OCV™ Technical Fabrics to provide materials that consistently meet their needs around the world.

For more about Viking Life-Saving Equipment, visit [www.viking-life.com](http://www.viking-life.com).



# 07 Twintex® Reinforcements Strengthen Dakar Rally Car



Twintex reinforcements are delivering their special performance properties in another challenging application – bodies for cars used in off-road racing.

The Nemesis is the newest vehicle from Bowler Off-Road, Ltd., Hazelwood, Derbyshire, UK. It has a body made in nearby Draycott by epm: technology group. To withstand the rigors of off-road racing, the body incorporates a variety of composite materials, each selected for specific properties. Twintex reinforcements are included for their versatility and impact resistance.

“ Twintex reinforcements are light, cost competitive and very impact resistant,” said Graham Mulholland, managing director, epm: technology. ”

“We are able to control the material well and put the impact resistance right where we want it.”

The flexibility and development speed available with composites were also a benefit as the body for Vehicle One was

finished by epm: technology only 18 days after the first project meeting with Bowler, their customer.

Body parts for the Nemesis are made with a modified vacuum bag molding process using heavy and light Twintex fabrics that have roving comprised of commingled glass and polypropylene filaments.

“This work is transferable,” adds Mulholland. “We believe it can be used in many lightweight engineering applications as vehicle manufacturers look for long-term cost-effective composite solutions.”

Mulholland also commented on OCV™ Reinforcements as a supplier: “They help when we need it, with real products and processes that work and are proven. They are real and not doing R&D for the sake of it.”

Bowler vehicles are well known in raid rally racing and three of the Nemesis models competed last February in the 31st edition of the world famous Dakar race, staged for the first time in South America. The event started in Argentina and ended in Chile. In between, the 14-stage event covered 9,500 kilometers (5,700 miles) of roads, sand, mountains and track. Twintex reinforced body parts endured a lot of bumps along the way and did just fine.

For more about epm: technology, visit [www.epmtechnology.com](http://www.epmtechnology.com).

## 08 Egg Shape Has New Meaning in Hungary

Given Hungary's folk art heritage, it is no surprise that the country has a Museum for Decorated Eggs. What may surprise some is that the Republic has a company making egg-shaped pipe for sewage systems. The pipe is made by Budaplast Rt., a company with a long history in polymer products.

Budaplast was founded near Budapest in 1949 to make fountain pens. In 1966 and '67, two factories were set up – one in Hatvan making unsaturated polyester for buttons, the other in Rózsaszentmárton processing fiberglass reinforced polyester. That second factory now makes the company's principal products – fiberglass-reinforced polyester pipe and fittings. The company employs 52 people.

Deputy Manager Arpad Door says the egg shape has several advantages. "There are fewer deposits," he explains. "There is a good self-cleaning effect due to the high flow velocity in the lower, narrower area of the pipe. Despite the narrow design, there is easy access due to the installation height," he continues. "The pipe also has a high intake capacity, provides good transportability and allows optimum installation even in cramped building sites."

Budaplast manufactures pipe with a helical filament winding process in sections up to six meters long and three meters high (20 and 10 feet, respectively).



The company buys fiberglass roving and mat from OCV™ Reinforcements.

"Our main market is Germany," says Door. "There are a lot of governmental investments there in the renovation of sewers. We also serve Hungary and Romania. We have had sales in Austria, Italy and France, and we shipped GRP pump stations to Peru."

Door says the market has been declining locally due to a lack of government financial resources.

"Our aim is to extend the business to other countries such as Slovakia and the Czech Republic where we do not have representatives," Door explained. "The key to future success will be finding the right person or company to distribute our product in new countries."

For more information, visit the company's Web site at [www.budaplastrt.hu](http://www.budaplastrt.hu).



# 09 Helping TPI Eliminate Waste



Rongda Li and Jean-Marc Sinkora (l-r)

OCV™ Reinforcements recently helped another customer reduce waste in its composite fabrication process.

TPI Taicang Composites, a wind turbine blade manufacturer in China, was creating waste when it used single-end roving. The more TPI produced to keep up with growing demand for wind blades, the more glass fiber waste it had.

Rongda Li, technical operations manager, OCV China, came up with a simple but innovative solution to TPI's waste problem. He supplied a special re-winder that enables TPI to reuse leftover and disconnected short glass fiber strands. The equipment resulted in a significant savings of Type 30® roving.

“OCV is truly an industry leader of composites and a solution provider,” said the TPI Taicang Composites sales director in a note to Jean-Marc Sinkora, managing director of OCV China. ”

In response, Sinkora praised TPI Taicang Composites as a company that is open to new ideas and process improvements. “TPI is a high quality composite maker with a long history in boats,” he said. “The company has a strong technical team and great teamwork, and they have been successful in applying their expertise to the wind energy market.”

TPI Taicang Composites is a manufacturing business of TPI Composites, headquartered in Scottsdale, Arizona, USA. The facility in China started production in 2007 in Taicang, Jiangsu Province. In addition to Type 30 product, the company also uses OCV's technical fabrics.

Power and energy is the fastest growing segment for glass fiber composites applications in the Asia Pacific region. It is driven by the growth of wind energy. The China composite market has been developing rapidly and has become the world's largest producer and consumer. More than 50 percent of all Asia volume demand is concentrated in China.

10

# Joining Forces with T. Boone Pickens



*Mike Thaman and T. Boone Pickens*

Known in 1980s as a takeover operator, American billionaire T. Boone Pickens is now becoming identified with an energy plan that includes increased use of renewable wind and solar energy. He has spent more than \$50 million of his own money to promote his ideas in The Pickens Plan.

Late last year his television ads caught the attention of Owens Corning Chairman and CEO Mike Thaman, who went to visit him. As a result of their meeting and subsequent talks, Pickens added the energy efficiency of buildings to his plan, and Owens Corning endorsed his plan and pledged to help promote it.

Thaman said Owens Corning was initially drawn to the Pickens Plan because it included wind power. He recalled reading Pickens' congressional testimony when he said, "We're in a hole, and we've got to start getting out of the hole."

"I told him he was right, but one of the things we have to stop doing is digging the hole," explained Thaman. "We keep digging the hole we're in because we're not as energy efficient as we need to be."

Buildings consume 40 percent of the energy in the United States, continued Thaman. "Using known technology, we can reduce the amount of energy being consumed in residential and commercial buildings by up to 50 percent. That 50 percent is the equivalent of eliminating 30 percent of the crude oil that is imported into the U.S."

The Pickens Plan calls for investment in domestic renewable resources, such as wind and solar, and the use of natural gas as a transportation fuel. The plan states that within 10 years, 22 percent of U.S. electricity can come from wind and solar, and that investing in domestic wind energy could create more than 138,000 jobs.

Additional information is available at [www.pickensplan.com](http://www.pickensplan.com).

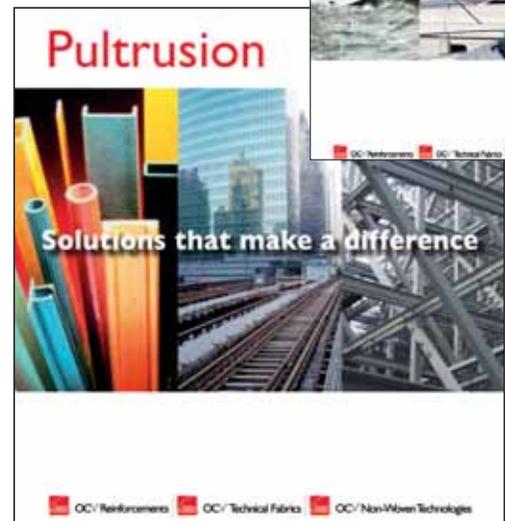
# 11 Resource Center

## New Brochures Available

Several helpful new brochures are available from the OCV™ businesses.

**Pultrusion** – An overview of the process and market with detailed information about the OCV products and solutions for the widely used procedure

**Marine** – OCV solutions for boat building including glass roving, veil and mat; products are aligned with the processes commonly used in the marine market; available in English and Italian

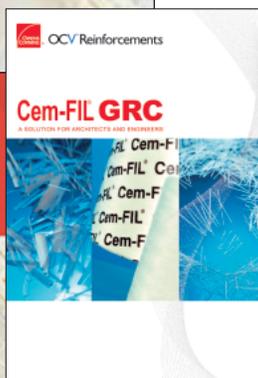


**Cem-FIL® GRC** – An introduction to glass reinforced concrete (GRC) materials, applications and processes, and the alkali-resistant glass fiber materials available from OCV Reinforcements; prepared for architects, engineers and others interested in this versatile and modern material system

**Cem-FIL GRC Spray** – A guide for the production of Cem-FIL GRC products with enough basic information about the spray process to begin producing good quality results

**Cem-FIL GRC Premix** – Basic techniques for manufacturing premix GRC products by the vibration casting and sprayed processes; also provides guidelines on mix and mold design

To download copies of these brochures, visit [www.owenscorning.com/composites](http://www.owenscorning.com/composites).



# Upcoming Events

OCV™ Non-Woven Technologies will be at the following trade show:

o **Techtextil 2009**, June 16-18, Frankfurt, Germany



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