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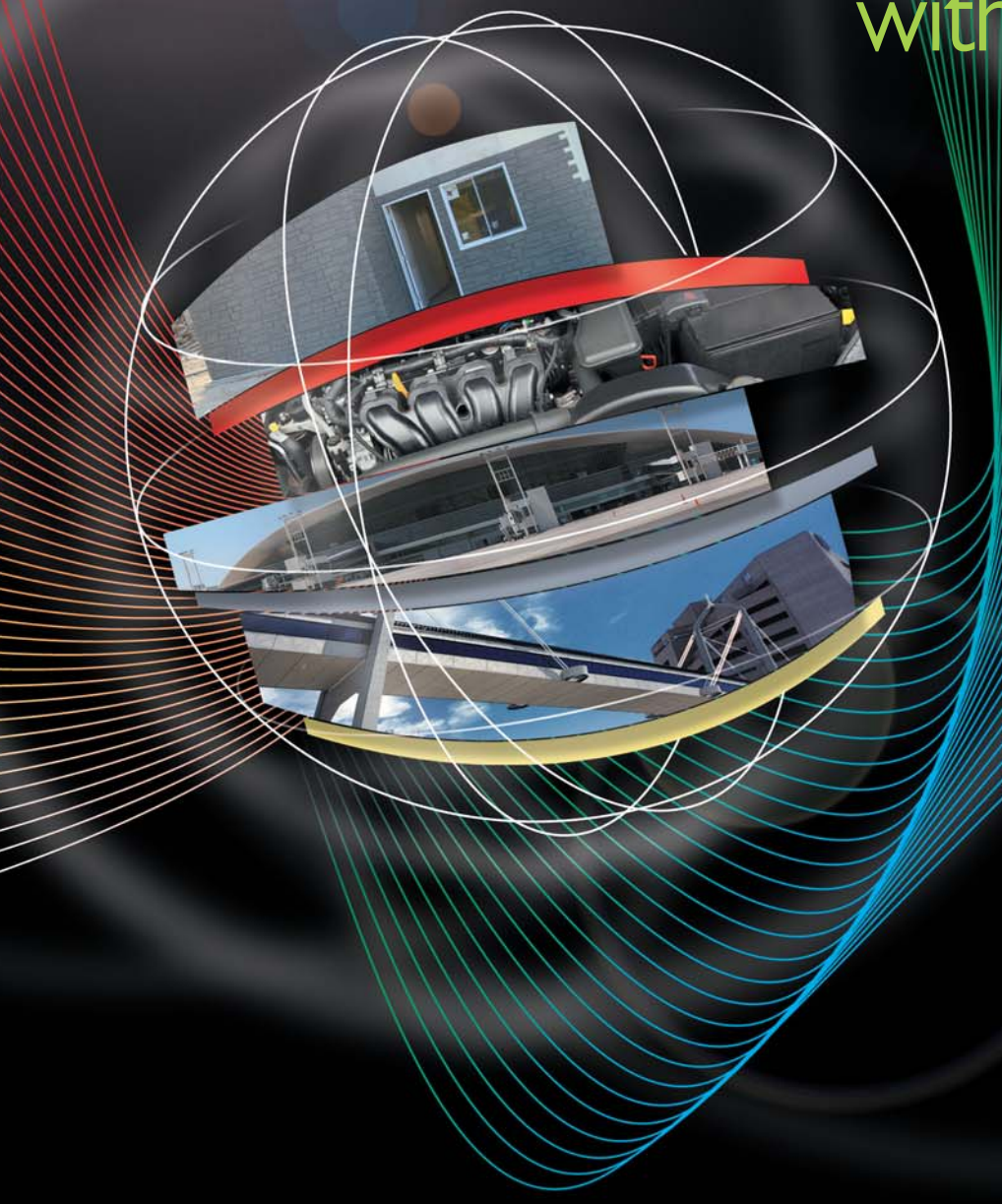
MARCH 2011

Composite Industry Wins with Application Challenge



EDITORIAL

COMPOSITE INDUSTRY WINS WITH APPLICATION CHALLENGE

One year ago at JEC Composites in Paris, Owens Corning launched a global competition to find new applications for composite materials. Winners were announced in February at the ACMA show in Fort Lauderdale. The goal was to drive industry growth and the contest was a way to attract attention, increase awareness of composites and uncover more great ideas for replacing traditional materials.

To date, the competition website has attracted 10,000 visitors from around the world. More than 400 individuals and teams took the time to submit entries. Forty semi-finalists and 16 finalists were chosen before the judges ultimately selected the four winners.

The application winning the US$200,000 development award – a collapsible glass fiber-reinforced thermoplastic pallet box from Lomold (Pty) Ltd., South Africa – has the potential to transform the market for pallet boxes to composites, which Lomold estimates to be about 5 or 6 million units annually.

The US$20,000-winning idea from Gauri Dutt Sharma of India could transform inter-modal shipping containers to composite panels, a market he estimates at 3 million units annually. Two ideas from the student winners could transform fuel cells and low-cost construction products to glass fiber-reinforced composites.

Readership numbers for media where Composite App Challenge ads appeared tell us thousands of people heard about the search for new composite applications. How many of them now understand that composites are durable, can help fuel efficiency, enable renewable energy and protect soldiers? How many bright minds stepped back and reflected on how composites can replace traditional materials? And how many entrants will see their ideas achieve commercial success now that the Challenge has made them visible on the Internet?

In my view, increased awareness and understanding, and more ideas being commercialized, are significant achievements of the competition in helping transform the world to composite materials.

Sincerely,

Arnaud Genis
Group President
Composite Solutions Business

For more about the Composite App Challenge, visit www occompositeappchallenge.com

03 MVC Composite Panels Win JEC Innovation Award

MVC Componentes Plasticos Ltda (Brazil) won the JEC Magazine Prize in the JEC Innovation Awards Program for 2011. The award was for composite panels lining the inner surface of the passenger terminal at the airport in Montevideo, Uruguay.

The panels also won an Award for Excellence in Composites at Feiplar Composites and Feipur 2010, held in November in São Paulo.

Partners in the development of the panels include Puerta Del Sur (Uruguay), Lord Industrial Ltda (Brazil), Owens Corning (Brazil) and Elekeiroz (Brazil). Owens Corning provided fiberglass reinforcement from OCV™ Technical Fabrics.

According to Gilmar Lima, director general of MVC, the awards are very important for what the project represents in the construction market.

"The Carrasco International Airport terminal is a new icon of world architecture, built under the strictest standards of safety and technology," said Lima.

"Our challenge was to develop a lining system that could meet the requirements of strength and safety, be applied without the need for special equipment and have the greatest strength at the lowest possible weight," he explained.

The project took six months to develop the panels made with fiberglass-reinforced polymer, an isophthalic gel coat and EPS (expanded polystyrene) and polyurethane cores. A total area of 24,000 square meters (nearly 260,000 square feet) of sandwich panels was installed..

The product developed by MVC met all mechanical, thermal and acoustic insulation requirements while eliminating the paint finishing step after assembly, resulting in fast deployment and low maintenance costs. Due to the reduced weight of the composite panels, the load borne by the building's main structure is much lower than with the metal solution originally specified by the designer*.

The final product, called Wall System, was approved by recognized research centers and universities in Brazil.

According to Lima, there is a large potential market in the construction and renovation of airports, gymnasiums and sports stadiums for the Soccer World Cup and Olympic events coming up in Brazil in 2014 and 2016, respectively.

* MVC estimate

For more about MVC, visit www.mvcplasticos.com.br/

04 Owens Corning Saves Big Buying FRP Tanks

Owens Corning recently had a chance to experience what the company has been preaching for many years – saving money by buying chemical storage tanks made with fiberglass-reinforced polymer (FRP) instead of stainless steel.

The Owens Corning buy was a big one – 85 tanks ranging in size from 350 to 40,000 gallons. The estimated savings was also substantial at about US$2 million.

The experience was prompted by a fundamental change in the binder used to make the company's fiberglass insulation. The new binder is made with all-natural ingredients in a formaldehyde-free formulation.

The change is one of the biggest transformations in the company's history because it redefines how insulation products are made. It also requires having new storage tanks installed at eight facilities throughout North America in an eight-month period between July 2010 and February this year.

To meet delivery deadlines and serve the widespread locations efficiently, Owens Corning purchased the tanks from three US fabricators – Michigan-based Belding Tank Technologies, Inc., Texas-based Belco Manufacturing Co. Inc., and Wisconsin-based Energy Composites Corporation.

EcoTouch™ PINK™ FIBERGLAS™ Insulation with PureFiber™ Technology

Owens Corning recently introduced a new fiberglass insulation product made with natural materials and a formaldehyde-free formulation. A new binder achieves a balance of environmental responsibility and exceptional performance. The insulation uses a minimum of 30 percent post-consumer recycled content and 50 percent total recycled content – the highest certified percentage in the fiberglass insulation industry. The company's Canadian plants began implementing the new technology late last year and US plants converted in the first quarter of 2011.

"All of the corrosion-resistant tanks were made with boron-free Owens Corning Advantex® E-CR glass fiber reinforcements throughout the laminate, from the resin-rich inner corrosion barrier to the structural portions of the tanks."

"It was nice to be able to leverage our own knowledge in a big way," said Dave Gordon, director of global sourcing, Owens Corning. "The project also demonstrated that we believe in our products and we are committed to growing with our customers."

Owens Corning is now sharing its success story with its engineering and chemical vendors so they understand the potential for savings with composite storage tanks.

"Our experience will help educate the market and potentially open doors for new clients and applications for our customers," added Gordon.

For more about Advantex® glass, visit www.owenscorning.com/composites/aboutAdvantex.asp

05 New Veil Extends Life of Flooded Batteries

Start-stop engine technology is the hot new concept for conserving fuel and reducing emissions but it demands much more from a vehicle's battery and has their makers moving quickly to improve performance.


© istock

One solution is a new battery type that produces more cycles than traditional batteries but is sensitive to heat, doesn't tolerate being significantly over-charged and has a price tag about 2.5 times higher than flooded lead-acid batteries.

As a result of those shortcomings, automakers are pressing battery manufacturers to meet the new requirements with their existing flooded lead-acid technology. Working with several battery manufacturers and a global authority on lead-acid battery chemistry, OCV™ Non-Woven Technologies responded with a new glass fiber veil that helps extend the cycle life and longevity of flooded batteries.

"The goal of this development was to use existing manufacturing assets and enhance existing products through a cost-effective transformation of well-established technology," said Ralph Jousten, industrial business development leader for OCV™ Non-Woven Technologies.

"Glass non-wovens from Owens Corning have long been recognised as an effective solution for heavy-duty batteries such as those used in trucks, sport-utility vehicles, marine vessels, materials-handling equipment and uninterruptible power supplies," explained Jousten. "In this situation, we were able to develop a new non-woven product – based on Advantex® E-CR glass technology – that could be applied directly to the face of electrodes, simplifying production by eliminating components and bringing functional benefits to the finished battery."

Making flooded batteries with the new veil requires no capital investment by battery manufacturers and the resulting product operates in higher-temperature environments and has an enhanced operational life, increasing its longevity and potential warranty period under the more demanding conditions of start-stop engine use.

Stop/Start 101

Stop/start engine systems save fuel and reduce emissions by shutting off the engine during idle time, such as at stop lights and railroad crossings. They are hard on batteries because of the frequent starts, and also because the battery must continue operating accessory systems while the vehicle is stopped and not charging it. These so-called micro-hybrids are the fastest growing electric vehicle. A recent report from a US consulting firm[1] predicted global sales will grow from approximately 3 million units in 2010 to 34 million by 2015 – a market share of nearly 37 percent. One driver of this growth is European legislation that will limit fleet CO_2 output to 130 grams per kilometer beginning in 2012.

[1] Micro-hybrids: On the Road to Hybrid Vehicle Dominance, Lux Research

For more about the new battery veil from Owens Corning, contact Jousten at Ralph.Jousten@owenscorning.com.

06 Twintex® Reinforcement Applications Finalists for Innovation Awards

Two applications made with Twintex® co-mingled glass and thermoplastic fiber were selected as finalists in the JEC Innovation Award competition for 2011.

"Sandwich panels for home construction from AS Composite Inc. (Canada)
"Composite storage tanks for hot water from Covess N.V. (Belgium)"

Sandwich panels were a finalist in the materials category and composite storage tanks were a finalist in the thermoplastic category.

"These innovative applications reflect the continuing interest in transforming applications that can leverage the benefits of reinforced-thermoplastic materials," said Philippe Pardo, Twintex® reinforcements leader, OCV™ Reinforcements.

Sandwich Panels

Golnaz Shokouhi, vice president for engineering at AS Composite, said the company developed its panel in response to the tsunami in Southeast Asia and hurricane Katrina in the USA.

"The panel is intended for the rapid construction of affordable houses with better performance compared to existing products," explained Shokouhi. "The panels have a glass-reinforced thermoplastic skin and expanded polystyrene (EPS) core. They can be used in roofs, walls, floors and partitions, and they can be modified to satisfy specific requirements for fire resistance, strength, heat and sound insulation. Potential uses include mobile homes, temporary and permanent homes, hospitals, clean rooms and much more."

AS Composite is also developing applications for transportation, construction, advertising panels and highway signs.

Storage Tanks

Tony Vanswijgenhoven, owner of Covess, said the market for storage tanks is expanding as a result of the growth of solar hot water, heat pumps, domestic water heaters and new industrial and specialty water heaters.

"The hot water market has been looking for a composite tank for many years," said Vanswijgenhoven. "The Covess solution offers low weight and competitive pricing in addition to all of the other composite material benefits, such as resisting corrosion."

Covess estimates the U.S. market at about 9 million units annually and the European market at about 14 million units annually.

For more about AS Composite and Covess visit www.ascomposite.com and www.covess.com.
For more about Twintex® reinforcements visit www.ocvreinforcements.com/solutions/Twintex.

07 New High-Performance Reinforcement for Long-Span Pultrusion

Owens Corning has introduced a new high-performance reinforcement solution for long-span composite parts manufactured with the pultrusion process.

XStrand™ H MCX24 roving has been specifically developed for demanding industrial applications requiring high modulus and long life.

The reinforcements are particularly suitable for the production of long-span composite products such as ladder rails, bars, rods, grating systems and structural shapes.

Compared to conventional E-glass, XStrand™ H MCX24 roving provides:

- Stiffness up to 15 percent more
- Strength up to 20 percent more
- Resistant to strong acid up to four times more
- Fatigue resistant at a given load up to 10 times more.

"XStrand™ H roving enables composite fabricators to produce longer spans with lower deformation at a given load, which is a key factor for applications such as ladder rails" said Thierry Deconinck, technical support leader for high-performance reinforcements in Asia Pacific, OCV™ Reinforcements.

"In some applications, the additional strength of XStrand™ H roving compared to conventional E-glass can enable weight and cost savings by meeting end-use performance needs with less reinforcement and resin, added Deconinck.

Developed specifically for use with polyester, vinyl ester and epoxy resin systems, XStrand™ H roving can also be used in acrylic and polyurethane systems for the production of long span structural beams such as telescopic rods and lighting poles.

Owens Corning high-performance XStrand™ H reinforcements are made with a boron-free glass formulation that meets R-glass standards ISO 2078, ASTM C162 and DIN B1259-1. The glass formulation is designed for excellent mechanical properties (tensile strength and modulus) and offers significantly better thermal and corrosion resistance properties than standard E-glass.

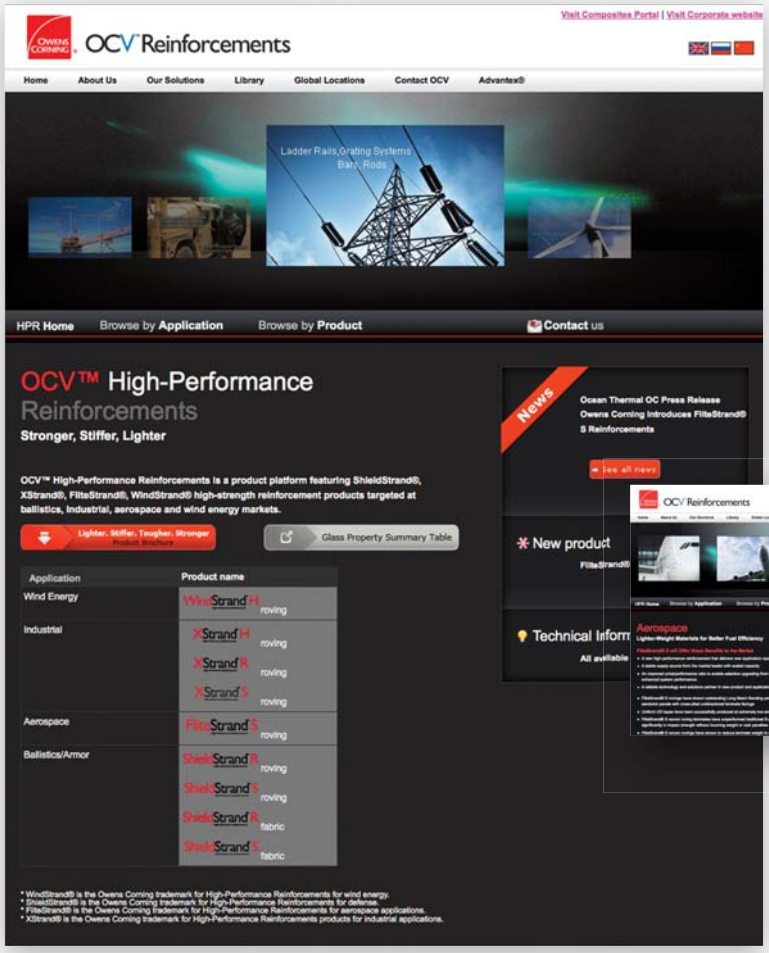
XStrand™ H roving consists of continuous glass filaments gathered in a single-end roving without mechanical twist and treated with specifically developed sizings. The roving is characterized by a low level of catenary, and excellent processing and handling characteristics – low fuzz, low static, complete run-out and fast wet-out.

For more information about XStrand™ H reinforcements, write to Thierry.Deconinck@owenscorning.com (Asia Pacific), Ashish.Gandhi@owenscorning.com (Americas) or Eric.Dallies@owenscorning.com (Europe).

08 High-Performance Reinforcement Web Pages Updated

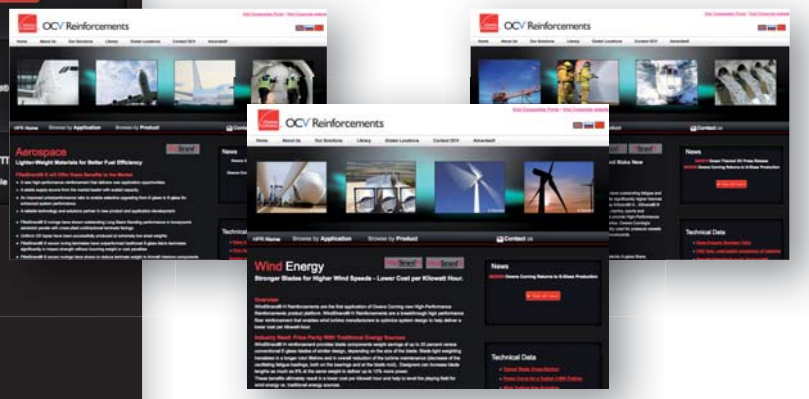
Web pages for OCV™ high-performance reinforcements have been updated to include more technical data and new solutions.

ShieldStrand®, XStrand®, FliteStrand® and WindStrand® reinforcements deliver strength while redefining value, enabling new applications and providing choices for customers. For example*:



- XStrand® H reinforcements for long-span pultrusion can provide up to 15 percent higher stiffness and up to 20 percent higher strength versus conventional E glass fibers (see article page 7).*
- ShieldStrand® S reinforcements provide higher structural performance than aramid, polyethylene or polypropylene and meet the tensile strength requirements for MIL-R-60346 Type IV Class 1 and 2. The reinforcements also meet all the fire, smoke, and toxicity (FST) requirements for military vehicles.*

* Owens Corning testing



See the new pages at: www.ocvreinforcements.com/hp

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