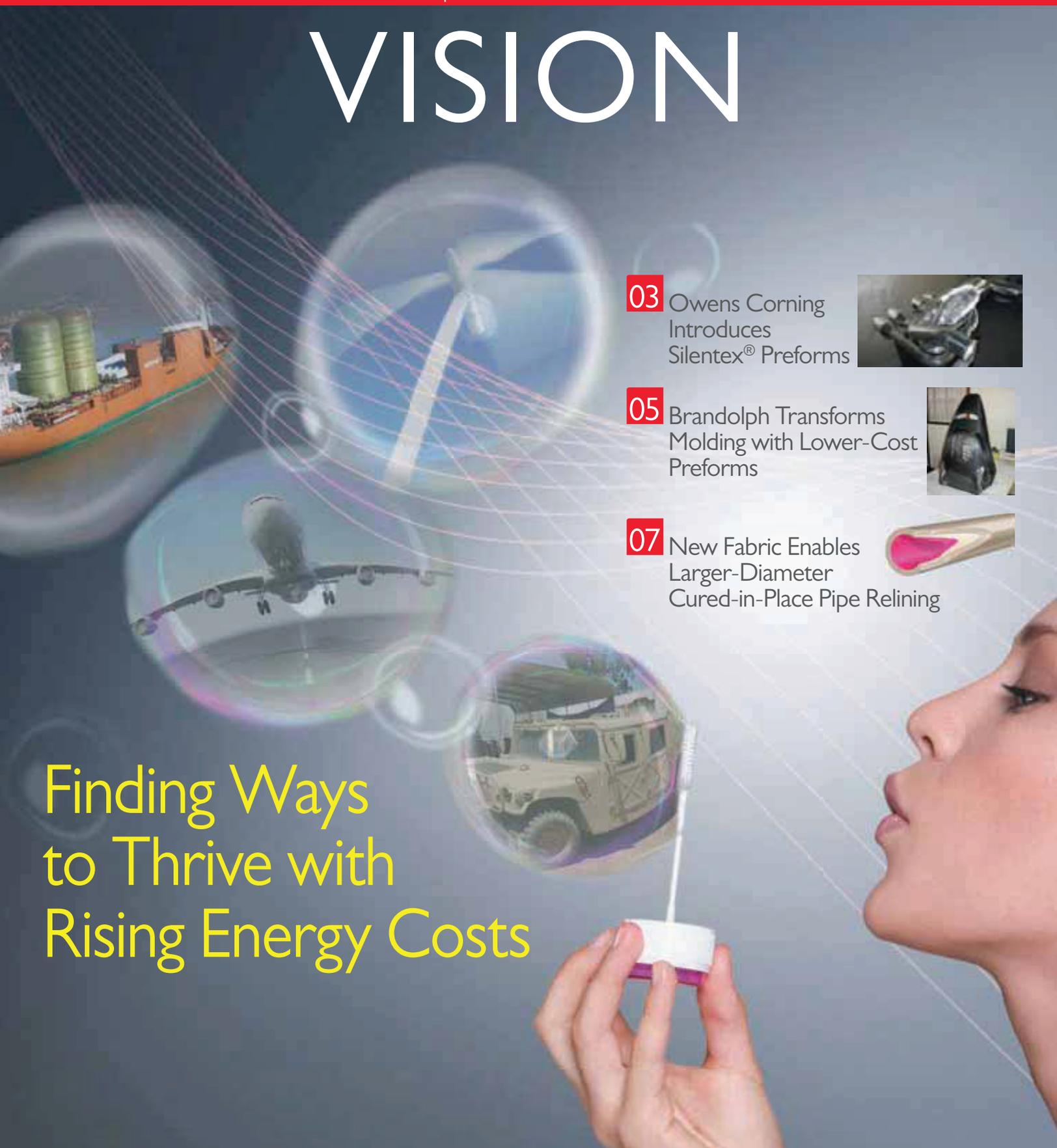


VISION



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Finding Ways
to Thrive with
Rising Energy Costs

THRIVING DESPITE RISING ENERGY COSTS



Few factors impact the global manufacturing sector like the cost of energy. Directly or indirectly, the cost of natural gas, electricity and oil impact the cost of raw materials, industrial and consumer products, and the cost to transport these goods around the world.

Over the past five years, the volatility of crude oil has made it very difficult to manage our businesses in an already complex world. Prices have increased by over 8 percent annually, climbing from an average of about \$56 a barrel in 2005 to \$79 a barrel in 2010. Some forecasts predict the average oil price to exceed \$100 a barrel this year, a staggering 28 percent increase from 2010. The forecasts also expect oil prices to stay above \$100 per barrel for the foreseeable future with steady annual increases.

Oil powers the cars, trucks, ships, airplanes and power plants that make up the backbone of the global economy. Transportation costs mirror rising oil prices, putting increased pressure on manufactures such as Owens Corning.

We have taken several steps to help partially offset increasing energy costs. We have implemented capital programs to drive energy efficiency in our glass melting, forming and packaging processes and we are working to fully leverage our global network of 38 manufacturing plants in 15 countries to help minimize the cost of transporting our products to our customers.

While variable energy costs create challenges for our industry, it also creates opportunities as the need for strong lightweight materials becomes increasingly more important. To capitalize on these opportunities, we are working with our customers to develop new applications, products and technologies that can reduce their customer and end-users' energy consumption.

There are several innovative examples which span the transportation and renewable energy markets as well as water distribution, housing, industrial, consumer and aerospace & defense applications. One such example is the strong truck panels developed with Wihag Composites which weigh 56 percent less than traditional steel and foam panels. We also introduced high-performance solutions which enable wind turbines to increase energy output and operate effectively at slower wind speeds. This was achieved by removing nearly a metric ton of reinforcement and resin from 2.0 megawatt wind turbines when compared to same-size blade sets made with traditional E-glass. Additionally, we are working on a development project for Ocean Thermal Energy Conversion with Lockheed Martin.

Our Composite App Challenge highlighted several ideas for fuel-efficient applications including the top-prize-winning collapsible pallet box by Lomold (Pty) Ltd. The application reduces costs by shipping 2 percent more product per load and allowing the shipment of up to four times more empty boxes per return trip.

We can't control the volatility of oil prices, but we can work together to manage our responses to the challenges in a changing global industry and leverage the opportunities presented.

Sincerely,
Arnaud Genis
Group President
Composite Solutions Business

03 Owens Corning Introduces Silentex® Preforms

New

Pre-formed muffler inserts have been added to the Owens Corning line of Silentex® engineered solutions.

The preforms are made in Amarillo, Texas, USA, one of the facilities making Silentex® roving with the company's patented Advantex® glass. The new acoustic and thermal solution was introduced at the International Noise and Vibration Conference hosted by the Society of Automotive Engineers (SAE), May 16-19 in Grand Rapids, Mich., USA.

"Preforms are a superior solution for mufflers and silencers," said Peter Adriaansen, general manager, vehicle components. "Compared to bagged products, molded inserts are easier to use, provide better noise reduction and are better for the environment because there is no bag to burn off."

With the addition of preforms, Owens Corning is the only global company providing four options for mufflers filled with fiberglass – standard and texturized roving, muffler filling technology and equipment, filled bags, and now preforms. The options are available where and when customers need them worldwide.

All of the major car makers today use Silentex® products for at least some of their vehicles. The ability of Advantex® glass fibers to withstand the heat and corrosive chemicals in today's modern exhaust systems is a foundation for such widespread use. Exhaust temperatures continue to rise as auto makers produce smaller, more fuel-efficient and powerful engines.



“Auto makers are using Silentex® noise control systems but they have been asking for solutions that make it easier for them to produce mufflers and silencers,” continued Adriaansen.

"Our pre-formed muffler inserts respond to that need."

The Silentex® system traces its roots to the mid-1980s when inventors at Owens Corning developed a process to make better automotive mufflers by replacing basalt wool with glass fiber. During the following 25 years, the basic technology was extended with innovations that improved the fiber and filling equipment, and made pre-filled bags.

The use of Silentex® engineered solutions is not limited to the automotive market. The products can be used wherever extreme acoustic and thermal insulation are required. Current applications include power sport vehicles (motorcycles, snowmobile and ATVs), industrial silencers and other non-automotive applications.

For more about Silentex® solutions, visit <http://www.ocvreinforcements.com/solutions/Silentex.asp>

04 New Reinforcements for High-Performance Thermoplastics

New

Owens Corning launched three new grades of short glass fiber reinforcements for high-performance thermoplastics in demanding automotive and industrial applications. Two grades are engineered for use with polypropylene (PP) in automotive applications and the third is for polyphenylene sulfide (PPS) applications in high-temperature fluids.

High-Performance PP

The new products for high-performance PP – 248A and PerforMax® 249A short fibers – were developed for high mechanical properties to support short-fiber PP solutions as alternatives to more engineered and expensive materials such as short glass fiber-reinforced polyamide (PA) and long fiber-reinforced PP. The products provide up to 15 to 25 percent higher impact strength versus current standard glass fiber-reinforced PP and support PP short fiber solutions for door modules, front ends and air intake manifolds.



“248A and PerforMax® 249A short fibers provide an exceptional balance of mechanical properties to meet tough automotive requirements while reducing overall systems costs.”

said Ludovic Chichignoud, global product leader for chopped strand thermoplastics. “Global automotive OEMs and their suppliers can expect increased tensile strength, impact resistance and fatigue resistance.”

The new fibers also offer compounding productivity benefits with low fuzz and fines, providing easy dispersion in extruders and less downtime.



PPS in Hot Fluids

HydroStrand™ glass fiber for PPS allows composites to replace metal in automotive and industrial applications exposed to aggressive high-temperature fluids such as cooling modules, thermostat covers, impellers and pumps.

“New automotive technology and designs are raising temperatures under the hood, generating increasing demand for new solutions that can replace metal,” said Chichignoud. “HydroStrand™

918A glass fiber is engineered to meet these challenges, enabling customers to leverage the design, performance and processing advantages of thermoplastics over metal.”

Using HydroStrand™ glass fiber in PPS improves performance up to 35 percent after hot water or glycol aging. Superior hydrolysis resistance helps reduce the risk of polymer breakdown at temperatures exceeding 130°C (266° F).



For more about our high-performance thermoplastics glass fiber solutions, contact Ludovic.Chichignoud@owenscorning.com

05 Brandolph Transforms Molding with Lower-Cost Preforms



Preforms are an attractive solution for the precise and consistent placement of reinforcements in molds for composites. But until recently, cost prohibited their use for small- to medium-sized production runs. Fabricators needing to make uncomplicated parts in moderate quantities were forced to use other materials or processes.

That situation is changing now with the introduction of lower-cost preforms by Brandolph SRL of Giussano, Italy, north of Milan. The company developed new technology that enables the production of preforms for projects that were previously not cost-effective.

“We can say with great satisfaction that Brandolph can produce preforms for as little as one-tenth of the cost of similar preforms in the past,” said Daniele Rigamonti, owner and president of Brandolph.



At JEC Composites in Paris this year, Brandolph introduced a new method of evaluating preforms that makes them easier for customers to consider.

“With our Preform Evaluation Pack (PEP),” explained Rigamonti, “a fabricator provides a composite part sample and in three weeks receives the first five preform prototypes that

can be used to evaluate the solution. The five preforms are made with technology that allows us to produce samples that faithfully represent those that can be produced industrially.”

Composite shells for the seats of a popular sports car an application that benefited from PEP and other company services. Brandolph’s customer used the first sample preforms to appraise the benefits in their process, and then Brandolph’s engineering team developed an improved preform combining both Unifilo® and Uniconform® continuous filament mat from Owens Corning.

“The resulting preform surpassed the most optimistic expectations of the technicians who worked on the project,” said Rigamonti. “The preform had excellent handling and productivity in dressing the mold. The combination also had great permeability and was able to achieve glass loading of more than 60 percent.”

Rigamonti said the support of Owens Corning has always been good. “Their technicians have always collaborated with our staff in the search to satisfy the requests of our customers,” he explained.

Now the leading European company in preforming, Brandolph was founded in 1967 by Daniele’s father Giovanni Rigamonti, who is honorary president of the company. The company can produce up to 300,000 preforms per year in various sizes up to 3000 by 2500 mm (about 10 by 8 feet).

For more information about Brandolph, visit <http://www.brandolph.it/>

06 Multi-Compatible Roving

Minimizes Weaving Changeovers

New



Owens Corning has introduced a single-end roving that minimizes the changeovers required when weaving fabrics for multiple resin systems.

SEI550 Type 30[®] roving is compatible with all major thermoset resin systems and weaving processes. Fabrics manufactured with the new reinforcement provide superior mechanical performance in major thermoset resin systems and excellent performance retention after exposure to moisture. These properties are beneficial in end-use markets such as consumer, industrial, marine and pipe.

The new reinforcement is made with the company's Advantex[®] glass, a corrosion-resistant E-CR glass fiber that meets standards ASTM D578, ISO 2078 and DIN1259-1.

“SEI550 roving is designed for applications such as woven, knitted and multi-axial fabrics or pre-pregs where enhanced mechanical properties including fatigue performance are required for all resin systems,” said Eric Carlier, global product leader for Type 30[®] roving.

“Our advanced sizing and chemical binding technology makes the roving compatible and well-suited for unsaturated polyesters, vinyl esters and epoxy resins,” continued Carlier. “The technology was optimized to improve weaver productivity by minimizing the changeovers required as they manufacture fabrics for use in a variety of resin systems.”

Available globally, SEI550 roving also delivers a range of other benefits including low-fuzz, less clean-up and reduced glass waste. The resulting high-quality fabrics can shorten cycle times, provide high resin pick-up and improve part aesthetics.

For more about SEI550 Type 30[®] roving, visit http://www.ocvreinforcements.com/product-families/Rovings_for_Weaving.asp

07 New Fabric Enables Larger-Diameter Cured-in-Place Pipe Relining



New

Owens Corning introduced a new reinforcement that improves the key performance features of glass-based cured-in-place pipe (CIPP) relining solutions.

The proprietary construction of Ultrapipe™ fabrics offer superior impregnation and wet-out properties, enhanced ultraviolet (UV) curing compared to existing CIPP fabrics and higher laminate mechanical performance¹.

Superior wet-out properties allow higher impregnation speeds and enhanced UV curing allows a significantly higher cure speed and shorter overall cure cycle to enable thicker laminates for relining larger-diameter pipe. In addition, all Ultrapipe™ fabrics are made with corrosion-resistant Advantex® E-CR glass to enhance the service life of the installed liner.

Patented Owens Corning technology called LOC (long-oriented chop) positions the fibers during fabric production to achieve an optimal balance between fibers oriented in the longitudinal – to endure pull-in forces during installation – and hoop directions of the pipe – to maximize pipe stiffness. This technology also provides fabric stretch-ability to allow a close fit in the existing host pipe.

“**Ultrapipe™ fabrics are a breakthrough for CIPP because they enable the trenchless rehabilitation of larger-diameter pipe,**” said Kees den Besten, program manager for CIPP at Owens Corning.

¹ Owens Corning tests

“Enhanced UV curing enables the production of significantly thicker laminates, making their use in larger-diameter pipes a reality.”

Developed 40 years ago in England, CIPP is a seamless, pipe-within-a-pipe solution now experiencing increased use, especially in urban areas where the technique minimizes excavation, decreases energy consumption and reduces traffic congestion. Sewer rehabilitation is a growing industry throughout the world as existing water and wastewater infrastructure deteriorates due to age, corrosion and the demands of a growing population.

“CIPP is an ideal technique for rehabilitating sewers in crowded areas,” said den Besten. “Ease of installation, efficiency, economy, rapid availability and minimal disruption to the surrounding infrastructure are driving the growth of the technology. Projects typically require no digging and can be completed much faster than traditional open-cut methods.

“In the past decade, UV-curable glass fiber liners have gained share over felt-reinforced heat-curable liners,” he added. “This trend is driven by the higher mechanical performance of glass-based UV-cured liners offering superior system tightness and low environmental impact. Significantly higher long-term stiffness of glass liners makes it possible to provide solutions with thinner wall thicknesses, which minimizes the reduction of the pipe cross section and flow capacity.”

For more about Ultrapipe™ fabric solutions, contact sales.eu.ocvtf@owenscorning.com

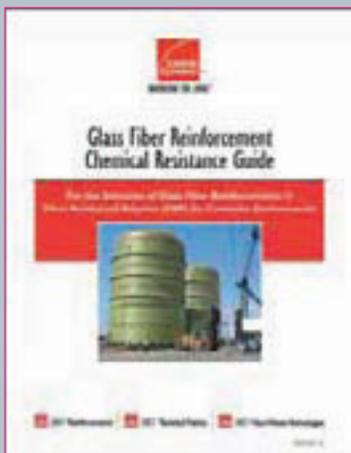
08 Corrosion Project Leads Available from Owens Corning

Owens Corning is now making information available to customers about projects in corrosive environments with tremendous opportunity for composites made with Advantex® glass fiber reinforcements.

The company is tracking projects in the early planning stages when material selection decisions are made. Tracking is focused on mining, coal burning power

and chemical processing plants and new projects will be updated monthly. Project information includes investment, schedule, scope of equipment and contacts. The service currently lists projects in the United States and Canada but plans are being made to list projects in other countries as the service expands. Information is already available through the local Owens Corning sales offices in India, China and Australia.

First Chemical-Resistance Guide for Glass Reinforcements



Owens Corning has produced the composite industry's first chemical-resistance guide for glass fiber reinforcements. The new guide helps end-users, engineers and fabricators select reinforcements for applications used in corrosive environments.

The guide includes a compilation of recent test results for Advantex® glass fiber and other reinforcements. Topics include:

- An introduction to glass fiber types, their attributes and price
- The role of glass fiber in a composite application
- Fabrication processes where glass fibers are used in fiberglass-reinforced polymer (FRP) construction
- Industry standards and recommendations for glass type
- Help writing a specification for FRP used in corrosive environments

“Our goal is to help our customers grow their businesses by increasing demand for composites,” said Matt Lieser, global corrosion-resistance specifications leader for Owens Corning. “We are also promoting Advantex® glass to help customers who use the best brand of glass fiber reinforcements for corrosive applications.”

To learn more, sign up for the service and download the guide, visit:
www.owenscorning.com/composites/aboutAdvantex.asp



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