

Composites Industry Monthly

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Warm Weather Spoiling '07 Ski Market

While many manufacturers of snow skis saw their sales figures and unit volumes for the 2005/06 skiing season tick upwards, the warm spring weather and anticipations for a warm winter this year are driving expectations for the 2006/07 down by as much as 20%. The primary selling season for snowboards and skis occurs in July through December. If strong snow conditions persist, this can extend the selling season into February. The market for skis

for the year ending in 2006 is estimated at 4.7 million pairs, compared to 4.2 million pairs during the prior year. At wholesale prices, this estimated to be valued at \$724 million (about 550 million euros) or about \$1.97 billion at retail prices. The market for "alpine" skis is about 6.5 times larger than the "cross-country," a.k.a. "nordic" models. During the same period of time, the winter sports industry delivered approximately 1.36 million snowboards, valued at \$525 million and about 1% ahead of 2005 unit volume figures.

In looking at the consumer purchasing trends, the value-priced segment has been growing at the expense of high-performance models. The average price per pair of skis is generally between \$250 and \$399 at retail – the price point for the high-performance products are three or four times greater. This trend is partially driven by the marketing departments which are trying to reach out to new or occasional skiers - particularly women. Additionally, retailers are attributing the inflation of other expenses related to ski trips (transporta-

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Warm spring weather and the anticipation of reduced snow fall this winter are driving manufacturers to lower expectations for ski and snowboard sales during 2007.



(153 MT) – not including scrap factors.

CMR acknowledges that this is a fairly condensed outlook of the market for winter sporting goods. For further details, contact Chris Red at the contact information provided at the end of the newsletter, or by e-mail to Chris@compositemarketreports.com.

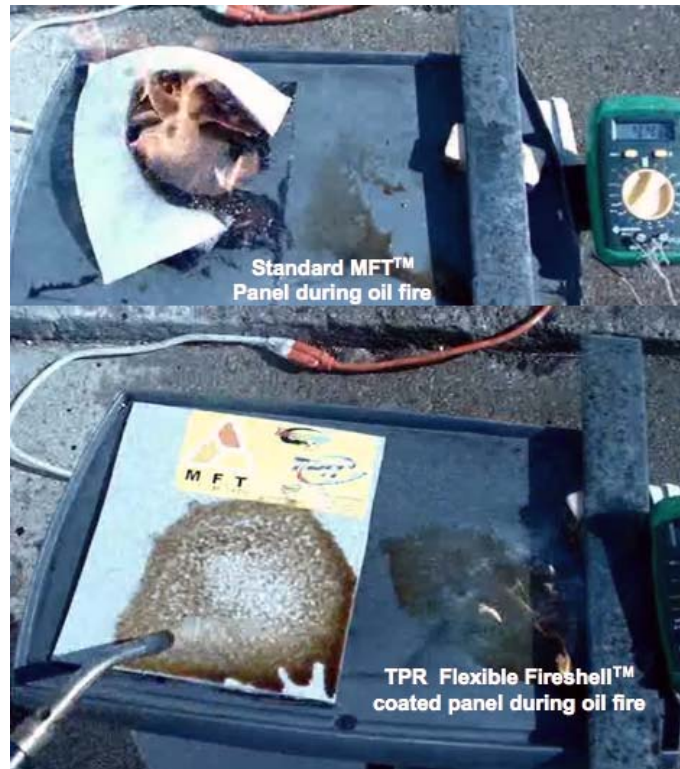
TPR² Bringing Improved FST to Composites

TPR² (Thermal Product Research) Corporation is a young research and development company focused on the creation of fire-retardant, low-cost, and environmentally safe coatings, plastics, thermally insulative foams. While the bulk of company's available products are currently focused on mining, building construction, remediation, and motorsports, TPR² has been making considerable strides towards adapting its technologies for fire, smoke, and toxicity (FST)-enhancing ceramic additives to the a wide range of commodity thermoplastics and well as fabrication of fiberglass and carbon fiber composites. This later possibility is attracting interest of both aerospace and industrial composite fabricators.

The demonstrated results of TPR²'s coatings and products have earned it the recommendation of NASCAR racing teams. For two years, TPR² has been supplying composite

panels and coatings to practically all current NASCAR Nextel Cup racing teams. In addition to improving safety of the end-product, TPR's coatings are designed to be water soluble, contain low- or no-VOCs. The enhanced coatings, paints can be applied with modified spraytips compatible with standard spraying and application equipment, and can be used for exterior and Class "A" finishes. The coatings are also said to exhibit better chemical and abrasion resistance compared to competing products – a crucial feature in reducing the mess and expense of maintaining the fire-safety materials on the undersides and wheel well/brake system environments in motor sports applications.

Richard Barone, TPR²'s VP of Marketing, remarked that the company's additive technologies are easily incorporated into traditional thermoplastics, such as polyethylene, polypropylene, and polyvinylchloride. In bulk, these composite thermoplastics, or Neolastics™, can approach costs close to regular polymer pellets. The resulting thermoplastics exhibit improved fire-resistance, lower smoke and toxicity. Mechanical properties of the resulting composite plastic approach 85% of the virgin material. Something interesting happens when these additives are mixed with thermoset polyester, epoxy, and two-part polyurethane foams. Barone indicated that, not only has the FST performance been carried over to the



The untreated MFT panel (top) quickly catches fire in this oil fire test. The panel treated with TPR²'s Flexible Fireshell refuses to ignite, even with a blow torch flame directly on it. Photo courtesy of TPR² Corp.

thermoset composites, the treated laminates shows a significant increase in compression strength compared to control samples. The exact reason for the increased matrix cross-linking is currently the subject of investigation at TPR², in concert with its business development partners. The cost of composites, non-flammable thermosets, and foams can be available in bulk at near price parity to untreated materials.

While the primary focus of TPR²'s research into composite will remain the suppression of fire and heat, the apparent compressive strength improvement provides some interesting potential for future composite applications. Eventually, Barone sees the company developing the technologies and techniques to pre-impregnate composites which then can be applied as needed at the surface of the laminate.

Since gaining exposure through the use of their products in NASCAR, TPR² has explored a number of potential applications with development partners. While unable to discuss specifics of its on-going programs, Barone said that TPR² is actively working with industry partners in the developing reinforced pipes, battery and protective systems housings, and is working on achieving MSHA (mining), FAA, and ASTM certifications for many of its products.

For more information, contact Richard Barone at (203) 756-8772, fax (203) 756-

8779, or by email to r.barone@tpr2.com.

Vestas Signs \$ 300 Million CF Deal Amid Expansion

During the second half of this month, **Vestas Wind Systems A/S** has signed a multi-year deal with **Zoltek Companies** for the purchase of carbon fibers, valued at \$300 million. This new order, covering the next five years, is reported to be roughly three times larger than the previous three-year supply contract between the two companies and is indicative to the high-demand for multi-megawatt wind turbine blades. By CMR's calculations, the \$300 million contract should provide enough material to fabricate CFRP blade spars for roughly 12,000 – 13,000 complete rotor systems for Vestas' 2.0 MW and larger turbine products. While the fiber will initially be headed towards production facilities in Northern Europe, a considerable portion of the contracted carbon fiber is expected to be delivered to new blade production facilities located in the United States, Spain, and China.

While plans to expand blade manufacturing in Spain and China a well known, Vestas has until recently been publicly uncertain about setting up capacity in the U.S. With the strong performance of the U.S. wind energy market over the past two years and continued confidence in the coming years

the decision has been made to set up a 200,000 sq ft blade manufacturing plant in Windsor, CO. The total investment in production equipment, land and buildings is expected to total about 45 million euros (approx US\$60 million). Construction recently began, and production is expected to commence in early 2008. The plant is being designed with a capacity to produce as much as 1,200 MW of windmill blades annually – employing about 400 people at full-capacity.

For more information, contact Jens Søby, President of Vestas Americas A/S, tel. +1 503 327 2115; or in Europe, contact Ole Borup Jakobsen, President of Vestas Blades A/S, tel. +45 9730 0000.

TPI Blade Ventures Gaining Momentum

TPI Composites, known for its SCRIMP™ infusion molding process, recently scored two major successes for its wind energy business with the signing of a long-term supply agreement with **GE Energy**. The agreement is designed to provide GE the production capacity to serve the rapidly expanding market for wind energy in China. Days prior, TPI also announced that its joint-venture with **Mitsubishi Power Systems America, Inc.** (MPS), **VienTek, LLC**, has begun the process of tripling the production capacity of their wind blade manufacturing operations, located in Juarez,