

# mobileTex

NEWS OF THE GLOBAL TRANSPORT TEXTILES INDUSTRY  
— AUTOMOTIVE, AEROSPACE, RAILCAR, MARINE —

## Prevent Global files for insolvency

SLOVENIAN company Prevent Global has filed a request for receivership in the courts, ending weeks of speculation about the fate of the troubled car seat cover maker. The filing came after a last-ditch rescue attempt mounted by the government that failed to secure a strategic investor.

Prevent Global chairman Renato Kranjc said the company could still halt bankruptcy proceedings should it obtain a suitable proposal from an investor. He added that a potential investor would have to inject capital into the company that would allow the payment of wages and current costs. Moreover, it would have to offer a clear vision for short- and long-term operations.

The receivership proceedings

endanger 1,260 jobs at Prevent Global and its subsidiary Prevent Avtomobilski, which produce car seat covers for Volkswagen and Mercedes-Benz. A further 1,490 jobs at subsidiaries abroad may also be in jeopardy since these companies will be made part of the bankruptcy estate once receivership is launched.

However, Kranjc said it was realistic to expect that Prevent would continue to operate once receivership is launched. The main question is under what conditions an investor would be willing to assume the healthy parts of the company.

After hearing the news, workers at Prevent Global and Prevent Avtomobilski halted the *continued on page 10*

## Baumann Dekor director leaves

Wolfgang List has left his position as director of marketing and distribution at Baumann Dekor of Gmünd, Austria.

Walter Würfel has taken over the marketing, international distribution and design departments in addition to his capacity as managing director of the company, which supplies fabric for the ship and aircraft industries, as well as for furniture and other sectors.

List had been responsible for the re-organisation and expansion of Baumann Dekor's international distribution network since March 2009.

[www.baumann.co.at](http://www.baumann.co.at)

## VDMA Composite Technology Network

GERMANY'S VDMA has established a network for machinery manufacturers engaged in the development and production of technologies for composite materials.

Initially, companies from four different VDMA associations have come together to form the VDMA Composite Technology Forum to create a platform for exchange among themselves, with users and with research establishments.

Jochen Zaun, managing director of Georg Sahm, which supplies special machinery for the

manufacture of the textile base material, was elected honorary spokesman of the VDMA Composite Technology Forum at the inaugural meeting.

[www.vdma.org](http://www.vdma.org)  
[www.sahmwinder.de](http://www.sahmwinder.de)



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## India to require 1,150 aircraft

India will require 1,150 commercial aircraft worth US\$130bn over the next two decades, according to Boeing India head Dr Dinesh Keskar.



Dinesh Keskar

Boeing has updated its latest 20-year aircraft requirement forecast for the country with the increasing growth of the aviation market following the downturn.

From last year's market outlook, this is an upward revision of 150 aircraft (50 B737s and 100 twin-aisles) worth US\$30bn, reports the *Times of India*.

Boeing also plans to pay compensation to Air India for the delay in delivery of the Boeing 787 Dreamliner.

[www.boeing.com](http://www.boeing.com)

## Expansion of Tyranno

Ube Industries reports that its silicone carbide fibre Tyranno is being used in gas filters for ship and aircraft engines.

The company is planning to expand production capacity as the current capacity of 10 tonnes/year of fibre from the pilot plant is unable to match the expected demand of 80 tonnes/year.

Tyranno has an extremely high heat resistance of 1800°C, which can not be matched by any other industrial fibre.

[www.ube-ind.co.jp](http://www.ube-ind.co.jp)

# Prevent to acquire Gaenslen & Völter

THE Wolfsburg, Germany-based Prevent Group will acquire Gaenslen & Völter on 1 December 2010. The bankrupt textile manufacturer of Metzingen, Baden-Württemberg, Germany, will be integrated into the Prevent Group, following the latter's takeover of Eybl Austria last year.

Gaenslen & Völter makes a range of textiles for the automotive industry, including materials for the interior lining of vehicles, on their doors, headliners on the roof, headrests and armrests. Customers include such original equipment manufacturers (OEMs) as Daimler, BMW, Audi, Skoda and Volkswagen.

Founded in 1883 as a family-owned company, Gaenslen & Völter originally produced men's outer clothing and wool fabrics for uniforms. In 1975, it expanded into the automotive segment with the development of automobile upholstery and related products and services for Daimler.

After the company was mod-

ernised in the 1980s through, among other things, investment in new buildings for its weaving and finishing divisions, an expansion was undertaken in 1998 through the takeover of bankrupt Calwer Tuche. But despite a successful start to the new millennium, Gaenslen & Völter ultimately declared bankruptcy in November 2009.

Under the management and supervision of Karl-Heinz Bierbreier, chief operating officer of Prevent Group, a project team has been installed for the takeover. This includes preparatory work for the formation of a new company where, among others, key personnel from Gaenslen & Völter, as well as some employees from Eybl Austria, will work.

For the time being, the Gaenslen & Völter brand will remain intact even though the company will be completely integrated within the Prevent Group.

[www.preventgroup.com](http://www.preventgroup.com)  
[www.gaenslen-voelter.de](http://www.gaenslen-voelter.de)  
[www.eybl-international.com](http://www.eybl-international.com)

## CFRP rapid cure moulding disclosed

MITSUBISHI Rayon has disclosed a new rapid cure moulding process called Tough Qure that can halve moulding time to around five minutes at 140°C while maintaining improved rigidity properties.

The key element of this technology is the use of a unique block polymer that is a rapid re-

action type of thermosetting resin, which can maintain rigidity and has a low resin flow performance. Rapid cure technology is an area of fierce competition among carbon fibre and carbon fibre reinforced plastic (CFRP) producers, including Toray Industries and Toho Tenax.

[www.mrc.co.jp](http://www.mrc.co.jp)

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# Market for 30,900 commercial planes

BOEING forecasts a US\$3.6trn market for new commercial airplanes over the next 20 years as world economies rebound and strong demand for new and replacement aircraft spurs growth. The *Boeing 2010 Current Market Outlook* foresees a market for 30,900 new commercial passenger and freighter airplanes by 2029.

The report, now in its 46th year of public release, reflects the improving, yet still unstable conditions facing the industry.

"The world market is doing much better than last year, but there are still challenges," said Randy Tinseth, vice president of marketing, Boeing Commercial Airplanes.

"Looking at 2010, we see a world economy that continues to recover. We expect the world economy to grow above the long-term trend this year. As a result, both passenger and cargo travel will grow this year. Airline revenue and yields are up, but fuel prices remain volatile."

Passenger traffic is expected to grow at 5.3% a year over the long-term, driven by economic growth from regions with diverse airplane needs. The single-aisle airplane segment will continue to dominate growth worldwide owing to the proliferation of low-cost carriers, emerging markets such as India, China and South East Asia, and continuing instability of fuel prices. The single-aisle segment has outpaced long-haul markets over the past decade and will continue to trend upward as older fleets are retired.

The Asia-Pacific region shows the most robust market gains, with China leading the way.

"Today, about one-third of all airline traffic touches the Asia-Pacific region, and as a result of the growth in this market, by 2029 almost 43% of all traffic will be to, from or within the region," said Tinseth.



Randy Tinseth

The airlines of the Asia-Pacific region will also be the largest buyer of twin-aisle airplanes – about 40% of the total demand.

The Middle East, which has been one of the fastest growing regions for air travel in recent years, represents another strong market. Airlines in the Middle East have been growing rapidly by taking advantage of geography, demographics, airplane technology and well co-ordinated growth and investment plans.

The North American and European markets will see substantial demand for replacement airplanes as they retire ageing, less-efficient jets. Robust growth in emerging markets with dynamic populations and growing incomes will lead toward a more balanced airplane demand worldwide.

Boeing predicts that airlines will grow by responding to their passengers' preference for more flight choices, lower fares and direct access to a wider range of destinations. Air carriers will focus on offering more flights using more efficient airplanes, rather than on using significantly larger airplanes.

As a result, the market for large airplanes (747 and larger) is small at 720 airplanes. But it remains an important market segment with a value of US\$220bn. It is a market largely for replacement of existing airplanes, not additional growth, with 45% of the demand from Asian customers and 23% from the Middle East.

Boeing also projects the world freighter fleet to increase from 1,750 to 2,980 airplanes – an increase of more than two-thirds. This growth will require 2,490 freighters.

[www.boeing.com](http://www.boeing.com)

## Chinese automobile production up 44%

According to the China Automotive Technology and Research Center, China's automobile production in the first half of 2010 recorded a 44.4% increase to 8.47m units.

In March was recorded the highest ever production in a single month of 1.7m cars; however, this slowed to 1.3m units in June, which was only a 12.4% increase compared with June 2009.

In the first half of this year, sales of new cars in China were 7.18m, a rise of 30.5% with stocks slightly increasing since February 2010.

Continuous economic growth of 9.1% since 2009 and a tax reduction for small cars (below 1600 cc) has supported the steady growth in car sales and production during the period.

Further growth in the second half is forecast owing to the increase in purchasing power in cities and urban areas, and growing demand from the countryside.

Meanwhile, government support for energy saving policies and the development of new energy will continue to support growth of car production and sales in China.

[www.catarc.ac.cn](http://www.catarc.ac.cn)

## Bayer collaborates with German university

Bayer Technology Services (BTS) and the Excellence Cluster for the Engineering of Advanced Materials (EAM) at the University of Erlangen-Nürnberg, Germany, have signed a co-operation agreement. The focus is on basic research in the field of advanced high-performance materials with customised properties, which play a key role in numerous areas, including automotive engineering.

[www.bayer-technology.com](http://www.bayer-technology.com)  
[www.eam.uni-erlangen.de](http://www.eam.uni-erlangen.de)

## Nisshinbo to build friction materials plant in Shanghai

Japan's Nisshinbo Holdings is to build a new plant to produce friction materials for automotive brakes in Shanghai, China. This is the company's second such facility in China, following construction of a plant in Beijing. The new investment is reported at ¥3bn (US\$35m).

With operations due to start by the end of 2011, the second plant will supply friction materials mainly to a South Korean automobile parts company to meet the growing demand for automotive brake materials in China. The material is made of high-tenacity aramid fibre combined with metal in a nonwoven structure.

Nisshinbo is said to have a 20% share of this market for Japanese automotive manufacturers, and aims to acquire a 20% share in China.

[www.nisshinbo.co.jp](http://www.nisshinbo.co.jp)

## Reducing cost of CFRP process

Several carbon fibre reinforced plastic (CFRP) manufacturers in Japan are simplifying the CFRP moulding process to reduce costs by 30-40%, which will enable lightweight automotive parts to be made at lower cost.

O-Kei Resin has developed a precise cutting process that reduces waste after the completion of CFRP moulding. This employs a conventional cutter with surface treatment modification that is claimed to be 20% cheaper than other cutters modified for CFRP.

Doum has devised a CFRP one-step moulding process for motorcycle wheels, while Challenge has developed a one-step moulding process for the surface and back portion of CFRP for automotive trunks and bonnets, which is said to be reduce processing time by 50%.

[www.ok-jyushi.co.jp](http://www.ok-jyushi.co.jp)  
[www.vollstrom.co.jp](http://www.vollstrom.co.jp)



# TB Kawashima starts operations

TB Kawashima, a new company established in December 2009 by Toyota Boshoku, Toyota Tsusho and Kawashima Selkon Textiles, officially started operations on 1 July.

Toyota Boshoku and Kawashima Selkon each hold a 39% shareholding in the new company with Toyota Tsusho holding 22%. TB Kawashima produces fabrics for seats and doors, headliners and other automotive interior materials.

Meanwhile, TB Kawashima USA, the US division of TB Kawashima, is to invest US\$9m to expand its manufacturing plant in Lugoff, South Carolina, USA.

The company, which expects

to add 50 jobs over the next five years, will start recruiting in the fourth quarter of this year when the new operations are planned to begin.

TB Kawashima's fabrics are used in cars manufactured by Honda, Nissan, Toyota and General Motors.

"This represents the second expansion to this plant in the last couple of years," said Yuzo Mori, president of TB Kawashima USA. "Demand for our products has continued to grow, and [Lugoff] has provided us with an excellent business environment in which to operate."

[www.tb-kawashima.co.jp](http://www.tb-kawashima.co.jp)  
[www.kawashima-usa.com](http://www.kawashima-usa.com)

## Airbus unveils futuristic concept plane

AIRBUS revealed images of a new concept plane at the recent Farnborough International Air Show held in the UK.

Engineers experienced in aircraft materials, aerodynamics, cabin design and engines came up with the design featuring ultra-long and slim wings, semi-embedded engines, a U-shaped tail and a lightweight "intelligent" body to lower fuel burn and emissions.

Research conducted by Airbus has shown that 68% of those asked expect to travel further using the aircraft and, as a result,

have a more environmentally friendly aircraft.

To coincide with the plans, Airbus has launched the "Fly Your Ideas" competition, challenging university students worldwide to develop new ideas for a greener aviation industry.

[www.airbus.com](http://www.airbus.com)



# Daimler investigates potential of smart technologies



AUTOMOBILE producer Daimler has joined the Insitex project of Germany's Ministry of Education and Research. The project aims for the application of intelligent textiles within automobiles to increase active passenger safety.

For example, implementing textile sensors into interior parts, such as the seat, steering wheel, roof panel, etc., will foster innovative solutions for accident prevention. Other possibilities are driver awareness and alertness, and seat occupation recognition.

According to Manfred Wagner of Daimler's Group Research and Advanced Engineering, modern car production and design is closely linked to a constant trend monitoring of global lifestyle habits.

"We have assessed the con-

stantly growing mobility of people all over the world, which means people spend more time in their cars. Design and function in the interior of cars thus becomes increasingly important. This is how we can make precise distinctions.

"There is a strong need for better energy efficiency for various electrical components; for example, heating or monitoring purposes in the seats. The genuine properties of textiles predispose this material to be used in car production.

"On the other hand, the automotive industry is cost and reliability driven and the advantageous textile features like smooth haptics, flexible structure or the integration ability of electronics

ing, etc., should eventually lead to innovative applications that will help reduce accidents. Applications should especially monitor the driver's state, alertness and seat occupancy.

## Initial position

In Germany, about 6,000 people die in traffic related accidents annually while around 440,000

have to be as reliable as in actual series production, which means they are designed for 8000 hours/15 years/300,000 km as far as Mercedes-Benz is concerned."

Wagner noted that competing technologies at present include conductive coatings on woven fabrics, nonwovens or foils, or optimised standard technologies, such as carbon or copper wires being stitched or clamped onto textile substrates, such as for seat heating purposes. Another competitive technology is stretchable circuit board technology that is integrated into textiles by a lamination process.

As part of the Insitex project, Daimler is developing with various players in the value chain new integrated textile sensors and printed electrodes to control comfort functions, to alert and inform the passenger, and to control airbag deployment.

In June, the company presented prototypes of seats equipped with sensors for seat occupation recognition and electrocardiogram (ECG) monitoring. Also within the project, Daimler has developed a sensing steering wheel that continually checks a range of bio-signals to monitor the driver's condition.

[www.daimler.de](http://www.daimler.de)  
[www.fzi.de](http://www.fzi.de)

*Based on an interview conducted by Dr Isa Hofmann, chief executive officer of IHofmann, a communication and marketing agency specialised in technical textiles and partner in the Systex consortium. [www.ihofmann.com](http://www.ihofmann.com)*

## Insitex project

INSITEX, a three-year joint research project that started in March 2007, examines the use of intelligent software for the enhancement of passenger safety in motor vehicles.

The integration of sensor elements in automobile parts such as seats, steering wheels, roof lin-

are injured – despite considerable improvement in traffic safety. Most of these accidents are as a result of human error: the micro-sleep phenomenon alone amounts for about 25% of these accidents.

The Bundesanstalt für Strassenwesen (Federal Highway Research Institute) estimates that

the economic loss incurred in such accidents was EUR34.5m (US\$44.4m) in 2001. Further, about EUR8m (US\$10.3m) could have been saved in Germany alone had all the accidents associated with fatigue been averted.

A technical system that recognises upcoming fatigue and the micro-sleep phenomenon that is associated with this would be a big step in road transport safety engineering development.

Fatigue and other road performance-related conditions like stress can be theoretically identified with the help of a combination of dynamic performance (e.g. steering angle) and physiological measurements, such as heart rate, heart rate variability and skin impedance.

The acquisition of such signals is, however, associated with a lot of effort owing to the current technical state, the instrumentation (self-adhesive electrodes, cable connections, etc.) as well as the costs that arise from this. The application of such technology in

motor vehicles is thus not viable in its current state.

The use of intelligent technical textiles that help acquire these physiological parameters without making a compromise on comfort in addition to other road safety applications are an ideal solution for this problem. These intelligent technical textiles can even be used to effectively obtain additional safety functions, such as selective airbag deployment using the seat occupancy recognition feature.

#### Targets

The Insitex project aims to create innovative solutions for the improvement of active motor vehicle safety features that are based on the use of intelligent technical textiles. The following new security features should be attained after the integration of micro-system technology components in the car interior, e.g. on the seat, seatbelt, steering wheel and the roof interior:

- monitoring the driver fatigue level (vigilance evaluation);

- monitoring other effects that undermine the driver's condition (stress and alertness);
- reliable seat occupancy recognition (including the differentiation of the various weight classifications);
- seat position and seatbelt alignment.

Various signals and parameter (ECG, head position, breathing rate, body temperature, etc.) need to be registered for the acquisition of these previously mentioned features. The current technology can not effectively acquire this data because of the sensors, such as electrodes, that need to be attached to the body.

The research project thus intends to solve these problems with the aid of intelligent textiles.

#### Partners

Daimler AG, Stuttgart  
 FZI, Karlsruhe  
 FHG IZM, Berlin  
 W Zimmermann GmbH, Weiler-Simmerberg  
 Fritz Moll Textil KG, Altshausen  
 I G Bauerrhin GmbH, Gründau

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# Rieter returns to profit in first half

AS a supplier to  the automotive and textile machinery markets, Switzerland-based Rieter said it successfully exploited the improved market environment in the first half of 2010 to generate growth.

Compared with the same period of the previous year, order intake increased 92% to CHF 1.62bn and sales grew 34% to CHF1.20bn. The group achieved an operating result before interest and taxes (EBIT) of CHF14.6m in the first six months.

Rieter noted that global automobile production in the first half of 2010 increased to 36.7m vehicles compared with 26.1m in the same period of the previous year. The highest growth rates were recorded in North America, where output increased 73% to 6.0m vehicles, ahead of China (+46%).

In Europe, Rieter's other main market, output continued to grow (+25%) even after scrap-plate premiums were phased out, but at a much slower pace than in the second half of 2009.

The recovery in automobile production is being driven by strong growth in consumer demand. Production of commercial vehicles, which has been at a very low level over the past year, again increased worldwide, especially in the second quarter of 2010. China's share of global output of heavy commercial vehicles already amounts to some 40%.


Rieter Automotive increased sales 35% to CHF876.7m in the first half of 2010 (CHF650.3m in 2009). The highest growth rates were recorded in North and South America and in Asia, where growth in China was 70%.

Rieter Automotive Systems

posted a positive operating result of CHF18.5m (-CHF78.0m in 2009), an improvement of CHF 96.5m compared with the same period of the previous year.

[www.rieter.com](http://www.rieter.com)

## Zoltek reports strong growth in Q3 sales

FOR the quarter  ended 30 June, carbon fibre producer Zoltek reported net sales of US\$42.4m compared with US\$30.3m in the third quarter of fiscal 2009, an increase of 40%.

For fiscal 2010's third quarter, Zoltek reported a net loss of US\$400,000 compared with a net loss of US\$1.4m in the third quarter of fiscal 2009. In the second quarter of fiscal 2010, Zoltek incurred a net loss of US\$5.0m.

For the first nine months of fiscal 2010, Zoltek's net sales were US\$97.3m compared with US\$104.9m in the corresponding nine-month period of fiscal 2009, a decrease of 7%. For the first nine months of the current fiscal year, Zoltek reported a net loss of US\$5.9m, compared with a net loss of US\$0.4m in the corresponding nine-month period of fiscal 2009.


Chairman and chief executive officer Zsolt Romy commented: "Looking ahead to the rest of this year and into fiscal 2011, we anticipate increased carbon fibre sales to existing and new customers in the wind turbine business, in addition to emerging applications. We are actively pursuing substantial growth opportunities for carbon fibre and related products in China, India and other markets and are encouraged by developments to date.

"At the same time, we are con-

tinuing to invest substantial time and resources in developing whole new applications for low-cost, high-performance carbon in automobile manufacturing, deep sea oil and gas production and other application categories that have the potential for even faster growth."

[www.zoltek.com](http://www.zoltek.com)

## Johnson Controls boosts Q3 results

FOR the third quarter of fiscal 2010,  Johnson Controls reported higher third-quarter profits and a 22% increase in revenues with higher sales in each of its three businesses, two of which are in the automotive sector.

For the third quarter of fiscal 2010, Johnson Controls reported net sales of US\$8.5bn compared with US\$7.0bn in Q3 2009, up 22%; income from business segments of US\$496m (US\$282m), up 76%; and net income of US\$418m (US\$163m).

Automotive Experience sales in the quarter increased 43% to US\$4.2bn against US\$3.0bn last year due primarily to higher production volumes and new programme launches. North American revenues increased 76% to US\$1.7bn from US\$1.0bn last year, while European sales were up 19% to US\$2.0bn from US\$1.7bn in the 2009 quarter.

Sales in Asia increased to US\$440m from US\$262m in 2009. Chinese revenues, which are mostly generated through unconsolidated joint ventures, rose 40% to US\$774m compared with US\$553m a year ago. Johnson Controls has a 45% share of the Chinese automotive seating market and is launching multiple new interiors programmes over the next three years.

Automotive Experience reported segment income of US\$171m in the current quarter, compared with a loss of US\$14m


last year due to higher volumes, operational efficiencies and higher profitability of its automotive joint ventures. The North America segment margin of 5.6% reflects the increased production volumes and benefits of cost reduction initiatives.

Asia segment margin, including the non-consolidated joint ventures in China, was 5.7%. Europe segment margin was 2.4%, lower than other geographic regions owing to the magnitude of new programme launches.

Johnson Controls increased its forecast for North American automotive production in its 2010 fiscal year to 11.4m units (previous estimate: 10.9m units). The company's production assumption for Europe is unchanged at 16.7m units.

[www.johnsoncontrols.com](http://www.johnsoncontrols.com)

## Hexcel more optimistic about this year

FOR the second quarter of 2010,  composites producer Hexcel reported net sales of US\$305.1m, 10% higher than the US\$277.3m achieved for the second quarter of 2009. Operating income for the second quarter was US\$40.5m, compared with US\$29.7m for the same quarter last year. Net income for the second quarter of 2010 was US\$23.1m compared with US\$16.8m in 2009.

Commercial aerospace sales of US\$161.0m increased 16.8% for the quarter compared with the second quarter of 2009. Revenues attributed to new aircraft programmes (A380, A350, B787, B747-8) doubled compared with the same period last year and represented more than 20% of commercial aerospace sales.

Sales to "other commercial aerospace", which include regional and business aircraft customers, were just above the second quarter of last year.

[www.hexcel.com](http://www.hexcel.com)

## Faurecia flies into first-half profit

FAURECIA jumped into profit in  the first half of this year with a net profit of EUR102m from a loss of EUR365m for the same period a year ago. The automotive supplier said the sharp rise was driven by a general upturn across all business groups.

Product sales increased 54% to EUR5.35bn (+33% at constant exchange rates), with operating income of EUR217m (3.2% of sales) compared with a loss of EUR187.3m in the same period last year.

In the first six months of 2010, the Automotive Seating business reported sales of EUR2.20bn, an increase of 28.8%.

Faurecia forecasts an 8% drop in light vehicle production in Europe in the second half of 2010, caused by the phasing out of tax incentives. Production is expected to grow by around 11% in North America.


As a result, the company expects a change in product sales of between -2% and +2% in the second half of 2010 compared with the same period of 2009.

The outlook for Faurecia's product sales in the second half of the year includes a drop of 5-8% in Europe; an increase of 11-14% in North America; and growth of 20-25% in Asia.

Against this backdrop, Faurecia has revised its 2010 targets upward, including a 13-16% increase in product sales at constant exchange rates and operating income above EUR340m.

[www.faurecia.com](http://www.faurecia.com)

## TRW forecasts improved revenue

TRW Automotive reported further year-on-year improvements in its financial performance in the three-month period ended 2 July 

2010. These improvements were driven by a combination of higher global vehicle production and ongoing restructuring and cost reduction activities.

For the second quarter, the safety systems supplier reported sales of US\$3.7bn, an increase of 34% compared with the prior year period, and record operating income of US\$322m compared with US\$44m.

For the first half of 2010, the company reported sales of US\$7.2bn, an increase of 41% compared with prior year sales. The increase resulted from the significantly improved global vehicle production volumes compared with the first six months of 2009, when industry production fell to its lowest point of the cycle.

Excluding special items, TRW reported net earnings of US\$430m in the first half of 2010 compared with a net loss of US\$107m in the first half of 2009.

TRW expects full year production to total 11.6m units in North America and 17.2m units in Europe. Based on these production levels and the company's expectations for foreign currency exchange rates, full-year sales are forecast to range between US\$13.2-13.6bn, with third-quarter sales expected to be approximately US\$3.1bn.

[www.trw.com](http://www.trw.com)

## Trevira reports successful first half



IN the second quarter of 2010, the business figures for polyester fibre and filament yarn manufacturer Trevira were again better than anticipated.

"We finished the first six months with a turnover of around EUR120m which is a good 10% above our forecast," said chief executive officer Uwe Wöhner.

The company reported several reasons for the stable and posi-

tive development of the fibre producer. These include the sustained recovery of the economy over recent months, which has ensured stability in demand, and the positive effects of the restructuring and cost-cutting programme.

In all market segments, sales volumes have been higher than expected. The automotive sector, in particular, shows signs of healthy order books for car makers, Wöhner revealed.

[www.trevira.com](http://www.trevira.com)

## Lear reports improved outlook

ANNOUNCING its financial results for the second quarter of 2010, automotive seating and electrical power management systems supplier Lear improved its outlook for the full year 2010 and increased its three-year sales backlog to US\$1.9bn.



The company reported second quarter net sales of US\$3.0bn, up 33% from a year ago, with core operating earnings increasing by US\$242m to US\$190m, its fifth consecutive quarter of increased earnings.

Lear noted that in the second quarter, the production environment improved from year-ago levels, with mature markets moving higher from distressed levels and growth in emerging markets continuing. Year-on-year vehicle production was up 73% in North America, +11% in Europe and +24% in China.

In the seating segment, Lear's net sales were up 30% to US\$2.4bn, while operating margins improved significantly.

Key assumptions for the full year include industry vehicle production of approximately 11.0m units in North America, 16.0m units in Europe and 13.4m units in China, and an average exchange rate of US\$1.30/euro. Lear expects 2010 net sales of approximately US\$11.0bn, consistent with its prior outlook, and core operating earnings of US\$450-500m, up US\$75m.

[www.lear.com](http://www.lear.com)

## Record operating income for Autoliv

FOR the three months ended 30 June, automotive safety systems supplier Autoliv reported a record quarterly operating income and margin of US\$229m and 12.7%, respectively. Net sales increased 51% to US\$1.80bn compared with the same quarter in 2009.



Excluding currency effects and acquisitions, sales grew 40% compared with the increase in global light vehicle production of 29%. Income before taxes improved to US\$206m and net income to US\$146m.

Based on the current IHS (CSM) light vehicle production forecast, the company indicates a net sales increase of close to 35% for the full year with organic sales growing by 28% and indicates an operating margin of more than 11%.

[www.autoliv.com](http://www.autoliv.com)

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## Prevent Global files for insolvency

*continued from page 1*

strike they had started in early August over unpaid wages. The strike has been frozen pending a decision on receivership, according to trade unionist Vlado Zorman. Meanwhile, the workers have been put on leave for the time being.

The development comes after a slow, two-year decline of the once formidable company that started with a battle for control between the two key owners, Janko Zakersnik and Nijaz Hastor in late 2008.

In recent months, Hastor, who owns 45% of Prevent Global, has moved production to other companies under his ownership. Hastor is the owner of Prevent Global's sole client, German company Prevent DEV.

The current debt of Prevent Global to banks is understood to amount to EUR52m (US\$68.6m). Last year, the company generated revenues of EUR42m (US\$55.4m), making a loss of EUR7m (US\$9.2m).

Slovenia's Ministry of Labour responded to the news of receivership at Prevent by announcing measures to help the workers who will lose their jobs. The Ministry will initially provide financial aid, after which the workers will be included in employment retraining programmes.

Meanwhile, Kenan Hastor, chief executive officer of Prevent DEV, which has operative and strategic responsibility for the Prevent Group, said that, based on unconfirmed rumours, the company's Slovenian employees precipitated the decision for Prevent Global to seek insolvency once it became clear the management was no longer able to guarantee continuing salary payments and no viable restructuring plan was in sight.

He stressed that, as a formally and legally independent company, Prevent DEV and its subsidiaries continue to be unaffected by the insolvency of the Slovenian firms. "As a direct contractor, we will continue to fulfil

our operative and financial obligations to our contractual partners as usual – independently of the current situation at Prevent Global," Hastor stated.

Earlier, following Slovenian newspaper reports concerning the "precarious" commercial situation of Prevent Global and the role of Prevent DEV, Kenan Hastor said: "Prevent DEV can neither influence the developments at Prevent Global directly nor comment on them, since these are two legally and commercially completely separate companies.

"The developments at Prevent Global have no operative and commercial effect on the Prevent group headquartered in Wolfsburg, Germany."

However, he admitted that the current situation of Prevent Global had started to appear last year, so Prevent DEV had "already made the respective preparations for securing production or payments to fulfil our obligations independently of the further development of Prevent Global".

At the beginning of 2010, Prevent Global was reported to have amassed debts worth EUR60m (US\$80m) while being plagued with ownership feuds, CEO resignations, threats of production relocation and employee revolts.

According to the *Slovenia Times*, major problems had arisen between Prevent Global and Prevent DEV, which supplies Prevent Global's car seat covers to German carmakers.

The newspaper said Nijaz Hastor felt his interests were not being adequately considered by the now former CEO of Prevent



Nijaz Hastor

Global, Igor Majcen. The latter, Hastor complained, was more concerned with pleasing the biggest owner, Janko Zakersnik.

The disagreement grew to such an extent that all co-operation between the two entities was suspended, causing the 1,800 employees of Prevent Global to fear for their jobs, the *Slovenia Times*

reported. More than 1,000 workers went on strike at the Prevent Global plant, as well as two other subsidiary companies.

The strike started after Majcen failed to announce to employees that Prevent DEV was terminating its co-operation with Prevent Global. When it became clear that the company failed to pay November's salaries and that Prevent DEV had sent trucks to the company's headquarters in Slovenj Gradec to retrieve raw materials as a part of the scheme to relocate production, the disagreement escalated further.

The workers went on strike, holding Majcen a prisoner in his own office, while demanding that he leave his post immediately. The CEO was trapped until police intervened; two days later, he resigned, and was replaced by Renato Kranjc.

With employees returning to work, the newspaper asserted that a rift still remained between owners Zakersnik and Hastor. Hastor refused to invest new equity into the loss-making company, fearing that it would not help the firm and saying that cost-saving measures should have been instituted by the previous management.

Prevent Group's insolvency filing could cause up to 1,800 job losses for the already hard hit Koroska – the region with the highest unemployment rate in Slovenia at 9.5% and where Prevent Global is one of the biggest employers. If Prevent DEV decides to move production elsewhere, only around 750 positions would be kept in Slovenia.

Meanwhile, Austrian automotive supplier Eybl Austria said it remains unconcerned with the insolvency developments of Prevent Global in Slovenia.

An Eybl spokesperson said all deliveries to customers and payments to suppliers would continue to be fulfilled.

Eybl, a supplier of seat covers and textile interior parts, was acquired by Prevent Austria in mid-2009.

[www.prevent.si](http://www.prevent.si)  
[www.preventgroup.com](http://www.preventgroup.com)  
[www.eybl-international.com](http://www.eybl-international.com)

## Odour-repellent fabric from crabshells

RESEARCHERS from RMIT University in Australia are using a natural biopolymer found in crustaceans to create odour-repellent fabrics for use in the automotive industry.

The researchers are studying how specialised fabrics could provide smart solutions for car interiors, resisting odours and staying cleaner for longer.

Dr Rajiv Padhye, Discipline Head, Higher Education in the School of Fashion and Textiles, said the researchers were working on various concepts for a number of automotive companies. "These include automotive fabrics that have anti-odour and antimicrobial properties, and anti-stain fabrics," he said.

For the anti-odour research,

various fragrance oils were applied to 100% polyester woven automotive fabric, the predominant fabric used in the industry, in combination with chitosan.

Chitosan, a natural biopolymer sourced from the structural element in the exoskeleton of crustaceans such as crabs and shrimps, was selected because of its film forming ability and antimicrobial attributes.

The study found that combining chitosan with a fragrance oil produced a durable fragrance finish in the fabric and gave it excellent antimicrobial properties.

The research was carried out by Masters student Saniyat Islam under the supervision of Dr Olga Troynikov.

[www.rmit.edu.au](http://www.rmit.edu.au)

## Borealis and Borouge in co-operation

BOREALIS, a provider of chemical and plastics solutions, has established a new Mobility business unit organisation that will, together with Borouge, its joint venture in the Middle East and Asia, provide global supply capability to support worldwide automotive Tier 1 and original equipment manufacturer (OEM) customers in the global automotive industry.

Borouge's Mobility business unit is focused on enhancing customer service and compounding facilities in the rapidly expanding markets of Asia.

The recent inauguration of Borouge's first compounding manufacturing plant in China in April 2010 supports global supply capability.

The plant in Shanghai provides innovative plastics solutions for bumpers, body panels, dashboards and door claddings

to the rapidly growing local automotive industry in the region.

Further, Borouge recently announced its intention to build a second compounding manufacturing plant in China.

This plant is expected to be completed by the middle of 2012 and produce up to 105,000 tonnes of compounded resins annually.

Borealis offers a range of application-specific Daplen thermoplastic polyolefin (TPO) compounds for exterior and interior parts.

Borcom polypropylene resins and XMOD glass fibre-reinforced PP compounds are used for under-the-bonnet plastics solutions.

Borealis also offers low-density, impact resistant alternatives to steel and polyamide.

[www.borealisgroup.com](http://www.borealisgroup.com)

[www.borouge.com](http://www.borouge.com)

## First shipments for the A350 XWB

Alliant Techsystems (ATK) has shipped its first deliveries for the A350 XWB (Xtra Wide Body) programme. These include stringers for three different sections of the aircraft fuselage and were received by Aerolia in St Nazaire, France, in May, by Airbus in Nantes, France, in June, and by Premium Aerotec in Nordenham, Germany, in July.

The stringers represent several configurations that ATK produces using its Automated Stiffener Forming Machine (ASFM) manufacturing technology. Depending on the location on the aircraft fuselage, the parts are either omega- or T-shaped, are straight or curved and twisted, and are thin or thick.

The ASFM process allows ATK to produce high-quality composite components with the greatest flexibility in design and unmatched repeatability. ATK's production processes reduce manufacturing time by up to 90% compared with traditional hand lay-up methods, while its advanced ultrasonic inspection process ensures quality and rapid delivery.

The overall ATK content on the A350 XWB includes components for fuselage and engines built for Airbus, Aerolia, Premium Aerotec, Spirit Aerosystems and Rolls-Royce, representing the largest commercial programme in ATK's history with total expected revenues of more than US\$1bn. At peak production, ATK expects to produce up to 40 km of composite components a month for the A350 XWB fuselage.

[www.atk.com](http://www.atk.com)

[www.aerolia.com](http://www.aerolia.com)

[www.airbus.com](http://www.airbus.com)

[www.premium-aerotec.com](http://www.premium-aerotec.com)

## Non-halogen non-flammable PBT resin

Toray Industries has strengthened its polybutylene terephthalate (PBT) business for automotive and electronics parts.

The material is said to offer excellent mechanical and heat resistance properties.

At present, the company has a 24,000 tonnes/year capacity in Ehime, Japan, and 60,000 tonnes/year of Toray BASF PBT Resin (TBPR) in Malaysia, of which 30,000 tonnes are available for Toray's own use. Therefore, 54,000 tonnes of PBT can be supplied by Toray annually.

The company has developed four grades of non-halogen type non-flammable PBT compounds produced at plants in Shenzhen, China, and Thailand to enlarge the applications of PBT in the industrial area.

[www.toray.co.jp](http://www.toray.co.jp)

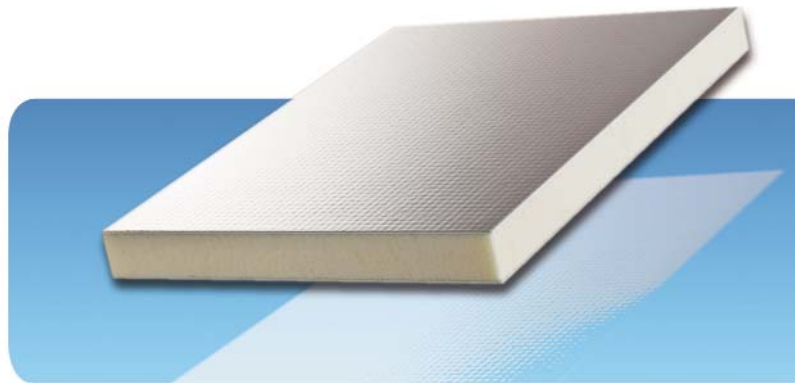
## Asian carbon fibre business strengthened

Toho Tenax, the core company of the Teijin Group's carbon fibres business, has established a Singapore office and added personnel to its Shanghai, China, office to strengthen its carbon fibre business in the fast-growing Asian market.

The Singapore office will conduct research to identify demand and cultivate customers in Singapore, Thailand, Malaysia and Vietnam, as well as in India and Oceania.

The Shanghai office, which has been operating since 2003, will reinforce market research activities in China with personnel added as of 1 June.

[www.tohotenax.com](http://www.tohotenax.com)  
[www.teijin.co.jp](http://www.teijin.co.jp)



Lamiluxplan High Impact

## GRP material for sandwich facings

LAMILUX has developed a new fibre-reinforced composite facing material that combines the positive features of thermoplastic and thermosetting materials and of sheet metals.

Lamiluxplan High Impact is primarily intended to be used as a surface for sandwich elements for side wall and roof structures. The product, which has extremely good impact resistance and tensile strength, will be presented at the Composites Europe trade fair (Hall 10-11, stand E43), in Essen, Germany, from 14-16 September 2010.

According to the company, Lamiluxplan High Impact has the impact resistance and surface appearance of polished metal facings, such as aluminium, while at the same time possessing the low thermal conductivity and elastic deformability of thermoplastic materials and having high resistance to ultraviolet light, weathering and corrosion and the rigidity, stability and low specific mass per unit area of thermosetting polymers.

Lamiluxplan High Impact also compensates for the disadvantages of these materials, such as the susceptibility of metals to corrosion and the poor paintability of thermoplastics.

Stefan Bachstein, technical director for Lamiluxplan, explained: "Due to its extreme impact resistance and tensile strength, our new material withstands the effects of even the strongest frontal forces."

According to standard tests, Lamiluxplan High Impact achieves an impact resistance of up to 100 kJ/m<sup>2</sup> and a flexural strength of 305 N/mm<sup>2</sup>. The value for the tensile strength has been determined as being 240 N/mm<sup>2</sup>. By way of illustration, a 1.0 cm-wide strip of Lamiluxplan High Impact with a thickness of 0.8 mm only tears with a tensile loading upwards of 155 kg.

To achieve the material's impact resistance, Lamilux utilises a new resin system, which provides Lamiluxplan High Impact with the necessary flexibility to absorb strong forces. The resin absorbs the stresses that are produced and transfers them into the reinforcing fibres.

Depending on the scope of application and the customer's requirements in terms of stability, these fibres can in turn be incorporated into the material in two or three plies, in various weights and with different fibre orientations.

[www.lamilux.de](http://www.lamilux.de)

# Carbon fibre materials used in construction of high-tech boat

MORE than 20 tonnes of carbon fibre have been incorporated in the Tûranor PlanetSolar catamaran. This state-of-the-art vessel, whose hull is manufactured completely from carbon fibre-reinforced plastics, is scheduled to circumnavigate the world with a four-man crew in spring 2011 while relying solely on solar power.

The 31 metre long, 15 metre wide and 6.1 metre high catamaran is the largest solar-operated boat ever constructed.

The Tûranor PlanetSolar was built by Knierim Yachtbau in Kiel, Germany. The mould for the main hull was produced there in one of its five-axis milling machines precisely to 0.1 mm by its Knierim Tooling Division.

Craig Loomes of Lomocean Design, New Zealand, designed the catamaran as a so-called wave piercer. Depending on the state of the sea, this involves both

floats (ancillary hulls) cutting through the waves and not passing over them.

By comparison, the main hull is above the surface of the water, which gives the Tûranor PlanetSolar the appearance of a trimaran, even though the ship is a catamaran.

To achieve the necessary rigidity and stability for wave piercing, and the low weight that is important for economic propulsion, all structural components of the 85-tonne vessel consist of carbon fibre composites.

"All-in-all, carbon fibres weighing 20.6 tonnes, a foam core weighing 11.5 tonnes as well as some 23 tonnes of epoxy resin and hardener were used," said Steffen Müller, managing director of Knierim.

Airex, a subsidiary of 3A Composites Holding, played a key role in the manufacture of the Tûranor PlanetSolar.

Apart from selecting the material, the lightweight construction also became the centre of attention where the laminate diagram was concerned.

As a result, the shell of the main hull consists of a sandwich with 4 mm of carbon fibre as the covering layers (biaxial and unidirectional) as well as 50 mm of Airex C70.130 as a high-density core material.

This density ratio of the cover and inner layer together with a high-tensile core material forms the centre piece of the ultra-light structural components.

"The solid carbon fibre skins link the hull with the lateral floats to form an extremely rigid box, which is surprisingly able to withstand the arising forces," Müller said.

The Tûranor PlanetSolar project began almost two years ago when the keel was laid. The initiator and financier of the EUR14m (US\$18.4m) investment is Immo Ströher, whose Swiss holding company Rivendell primarily invests in renewable energies and environmental protection technologies and is also involved in Solon, the Berlin, Germany-based manufacturer of solar cells. This company also supplied the solar collectors for the Tûranor PlanetSolar.

Airex will be displaying its Airex C70 material in various densities for the structural foam core at Composites Europe from 14-16 September 2010 in Essen, Germany.

[www.knierim-yachtbau.de](http://www.knierim-yachtbau.de)  
[www.lomocean.com](http://www.lomocean.com)  
[www.airexag.ch](http://www.airexag.ch)  
[www.alcancomposites.com](http://www.alcancomposites.com)  
[www.rivendell.ch](http://www.rivendell.ch)  
[www.solon.com](http://www.solon.com)  
[www.composites-europe.com](http://www.composites-europe.com)



**The high-tech Tûranor PlanetSolar, constructed using carbon fibre composites, aims to circumnavigate the world using solar power only. Photo: Reed Exhibitions/Marcus Reichl**

## Carbon fibre centre in China by 2012

Jilin, which is a growing centre of the chemical industry in China, aims to become the country's largest carbon fibre centre by 2012.

A representative of the carbon fibre plant of Jilin Petrochemical said the company had overcome technical problems and has succeeded in producing high-performance carbon fibre in bulk commercial quantities.

Several other Jilin-based carbon fibre producers, including Jilin Chemical Fibre, already have operations.

At present, there are six carbon fibre plants operating in the area and 11 projects are under construction with a total investment of CNY4bn (US\$588m).

[www.petrochina.com.cn](http://www.petrochina.com.cn)  
[www.jlhxt.com](http://www.jlhxt.com)

# Small but perfectly formed interiors expo

AUTOMOTIVE Interiors Expo, a new show that provides the automotive design, development, engineering and manufacturing communities with an international showcase for car and truck interiors, made a successful debut in June 2010 at the Stuttgart Messe.

Running alongside the established Automotive Testing Expo and three other automotive-themed events, Automotive Interiors Expo was hailed a success by exhibitors and visitors.

According to organiser UKIP Media & Events, automotive interior designers favour having their own dedicated interiors show featuring the major original equipment manufacturers (OEMs) and Tier 1 suppliers with attendance from car manufacturers, styling studios and interiors integrators.

Although the inaugural exhibition was relatively small, Auto-

motive Interiors Expo is expected to grow in terms of number of exhibitors and exhibition space.

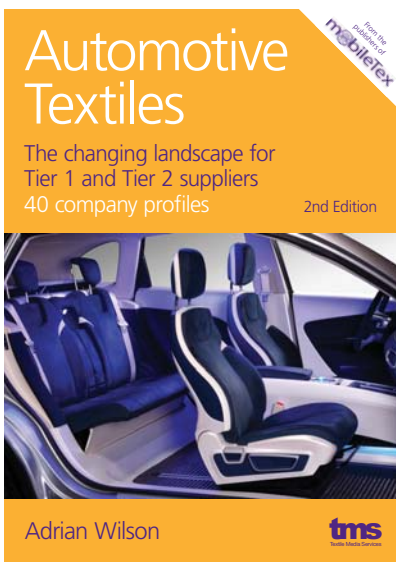
One of the main attractions at the first show was the Styling and Technology Studio, which hosted a number of topical presentations and sessions that delved into the different aspects of the automotive interiors sector, including style trends and culture, design challenges and synergy, modular vision, new technologies for safety and comfort, innovative lighting designs and a renewed sustainable approach to interior component design and technology.

The studio sessions featured a number of high-profile speakers from such companies as Daimler, Nissan, Renault, Lear and Fiat.

The event will return to the Stuttgart Messe next year, taking place from 17-19 May 2011.

[www.automotiveinteriorsexpo.com](http://www.automotiveinteriorsexpo.com)

## NEW 2ND EDITION



[www.mobile-tex.com](http://www.mobile-tex.com)

# Automotive Textiles

## The changing landscape for suppliers

THE use of textiles in automotive applications includes floorcoverings; upholstery; belts, tubes and tapes; tyre cord; safety belts; airbags; components; and filters.

Even before the latest global recession, the automotive industry supply chain had been in a process of ongoing consolidation — in 1988 there were an estimated 30,000 suppliers and by 2010 it is likely there will be less than 3,000.

Published in September 2009 by Textile Media Services, this updated 2nd edition — *Automotive Textiles: The changing landscape for Tier 1 and Tier 2 suppliers* — provides the latest analysis of the fast-altering global automotive textiles industry.

Featuring an overview of the global automotive industry and

the wide-ranging use of textile materials in vehicles, this new report covers the latest developments with regard to product areas and leading players, bringing together the key themes that are forecast to play a prominent role in future generations of automotive textiles.

Written by Adrian Wilson, this in-depth report, with more than 270 pages and over 100 tables: examines the global automotive industry; defines automotive fabrics and textiles; identifies key areas of application.

This 2nd edition also contains profiles of 40 key users and producers of automotive textiles

● The publication price is £445 GBP (including airmail delivery).

[www.mobile-tex.com](http://www.mobile-tex.com)

**9-10 September 2010**

**8th International Symposium on Materials made of Renewable Resources** Erfurt, Germany Contact: Messe Erfurt. Tel: +49 361 400 1740. Fax: +49 361 400 1111. E-mail: narotech@messe-erfurt.de Website: www.narotech.de

**14-16 September 2010**

**Aircraft Interiors Expo Americas** Long Beach, California, USA. Contact: Reed Exhibitions. Tel: +44 20 8910 7179. E-mail: frederique.barret@reedexpo.co.uk Website: www.aircraftinteriorexpo-us.com

**14-16 September 2010**

**Composites Europe** Essen, Germany. Contact: Reed Exhibitions Deutschland. Tel: +49 211 9019 1224. Fax: +49 211 9019 1122. E-mail: info@composites-europe.com Website: www.composites-europe.com

**14-16 September 2010**

**Automotive Composites Conference & Exhibition (ACCE)** Troy, USA. Contact: SPE Automotive Division. Tel: +1 248 244 8993. E-mail: spe\_automotive\_detroit@yahoo.com Website: www.speautomotive.com/comp.htm

**14-19 September 2010**

**Automechanika** Frankfurt am Main, Germany. Contact: Messe Frankfurt Exhibition. Tel: +49 69 7575 6035. Fax: +49 69 7575 5908. E-mail: automechanika@messefrankfurt.com Website: www.automechanika.com

**15-17 September 2010**

**49th Man-Made Fibers Congress** Dornbirn, Austria. Contact: Österreichisches Chemiefaser-Institut. Tel: +43 1 319 2909. Fax: +43 1 3192 90931. E-mail: oechiwienv@eunet.at Website: www.dornbirn-mfc.com

**20-23 September 2010**

**Research, Innovation & Science for Engineered Fabrics (RISE) Conference** Baltimore, Maryland, USA. Contact: INDA. Tel: +1 919 233 1210. Fax: +1 919 233 1282. E-mail: mayers@inda.org Website: www.inda.org

**21-24 September 2010**

**InnoTrans** Berlin, Germany. Contact: Messe Berlin. Tel: +49 30 30380. Fax: +49 30 3038 2190. E-mail: innotrans@messe-berlin.de Website: www.innotrans.com

**28-30 September 2010**

**GOCarbonFibre2010** Barcelona, Spain. Contact: IntertechPira. Tel: +44 1372 802051. E-mail: paul.squires@pira-international.com Website: www.gocarbonfibre.com

**13-14 October 2010**

**Filtrex 2010** Cologne, Germany. Contact: EDANA. Tel: +32 2 734 9310. Fax: +32 2 733 3518. E-mail: info@edana.org Website: www.edana.org

**19-21 October 2010**

**Cinte Techtextil China** Shanghai, China. Contact: Messe Frankfurt (HK). Tel: +852 2802 7728. Fax: +852 2598 8771. E-mail: info@hongkong.messefrankfurt.com Website: www.techtextil.com

**26-27 October 2010**

**IFAI Advanced Textiles '10** Orlando, Florida, USA. Contact: IFAI. Tel: +1 651 222 2508. Fax: +1 651 631 9334. E-mail: tvlindemann@ifai.com Website: www.advancedtextilesconf.com

**26-27 October 2010**

**IFAI Expo Americas 2010** Orlando, Florida, USA. Contact: IFAI. Tel: +1 651 222 2508. Fax: +1 651 631 9334. E-mail: tvlindemann@ifai.com Website: www.ifaexpo.com

**3-6 November 2010**

**Automechanika Argentina** Buenos Aires, Argentina. Contact: Messe Frankfurt Exhibition. Tel: +49 69 7575 6035. Fax: +49 69 7575 5908. E-mail: automechanika@messefrankfurt.com Website: www.automechanika.com

**10-12 November 2010**

**FEIPLAR Composites & FEIPUR 2010** – International Exhibition and Congress on Composites, Polyurethane and Engineered Plastics, São Paulo, Brazil. Website: www.feiplar.com.br or www.feipur.com.br

**16-18 November 2010**

**Railway Interiors Expo Asia** Hong Kong. Contact: UKIP Media & Events. Tel: +44 1306 743744. Fax: +44 1306 877411. E-mail: j.padgham@ukintpress.com Website: www.railwayinteriors-expo.com

**30 November-2 December 2010**

**INTERauto 2010** Cologne, Germany. Contact: G + J Events. Tel: +49 40 6690 6909. Fax: +49 40 6690 6800. E-mail: info@inter-auto.de Website: www.inter-auto.de

**12-14 January 2011**

**Busworld India** Mumbai, India. Contact: Inter Ads. Tel: +91 124 438 1161. Fax: +91 124 438 1162. E-mail: busworld@interadsindia.com Website: www.busworldindia.com

**8-10 March 2011**

**Asian Aerospace International Expo and Congress** Hong Kong. Contact: Reed Exhibitions. Tel: +65 6780 4669. E-mail: david.lim@reedexpo.com.sg Website: www.asianaerospace.com

**15-17 March 2011**

**Techtextil North America** Las Vegas, Nevada, USA. Contact: Messe Frankfurt Inc. Tel: +1 770 984 8016. Fax: +1 770 984 8023. E-mail: ttnainfo@usa.messefrankfurt.com Website: www.techtextilna.com

**22-24 March 2011**

**Filtech 2011** Wiesbaden, Germany. Contact: Filtech Exhibitions. Tel: +49 2132 935760. Fax: +49 2132 935762. E-mail: info@filtech.de Website: www.filtech.de

**5-7 April 2011**

**Aircraft Interiors Expo** Hamburg, Germany. Contact: Reed Exhibitions. Tel: +44 20 8910 7179. E-mail: frederique.barret@reedexpo.co.uk Website: www.aircraftinteriorexpo.com

**12-15 April 2011**

**INDEX 11** Geneva, Switzerland. Contact: Geneva Palexpo. Tel: +41 22 761 1111. Fax: +41 22 798 0100. E-mail: index@geneva-palexpo.ch Website: www.index11.org

**17-19 May 2011**

**Automotive Interiors Expo** Stuttgart, Germany. Contact: UKIP Media & Events. Tel: +44 1306 743744. Fax: +44 1306 742525. E-mail: jason.sullivan@ukipme.com Website: www.automotiveinteriorexpo.com

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**Textiles South East Asia**

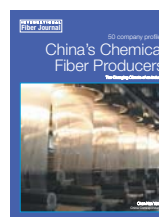
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This new review outlines the global market for personal protection clothing in the industrial, workwear and private sectors, and details the legislation, regulations and standards that govern their manufacture and use.



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[www.textilemedia.com](http://www.textilemedia.com)

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