Show Preview

JEC Asia Innovation Awards 2011 for Groundbreaking Composites Applications Announced

JEC Composites has announced the winners of the **JEC Asia Innovation Awards 2011**, the annual award program organized by JEC Group that recognizes breakthrough composites processes & application developments across the Asia Pacific region. The rapid pace of growth in Asian countries, such as China, India & South Korea, has outstripped industrial developments in other parts of the world & led to an increased demand in Asia for more innovative technologies and processes to be adopted across the composites value chain, particularly in industry segments such as aeronautics, automotive/transportation & construction/infrastructures. This year, 14 organizations & their partners will receive awards for their roles in advancing composites innovations at JEC Asia 2011. The annual JEC Asia will be held in Singapore on October 18-20 "Our annual JEC Asia Innovation Awards program provides a clear affirmation that composites research and development activities are fast gaining prominence in Asia," says Frédérique Mutel, JEC Group President and CEO. The Awards are handed out based on their technical interest, market potential, partnership, financial impact and originality.

Frédérique MUTEL
JEC President and CEO

Honoring Composites Industry Veterans who made a Difference

Besides handing out awards in nine composites technology & application categories, the JEC Group will also be handing out Life Achievement Awards to honor two individuals who have made a significant contribution to advancing composites growth in the Asia Pacific region- Kim Jung Heun, President of Keun Yung Industrial Co. Ltd. in South Korea; & Chen Shao Jie, Professor at Shenyang Aircraft Design & Research Institute & Executive Director of the Chinese Society for Composite Materials.

Kim Jung Heun established Keun Yung Industrial in 1973 & under his leadership, the company has developed advanced capabilities in manufacturing & supplies a wide range of fiber glass reinforced plastics. Between 1989 & 1992, Kim also played an integral role in the establishment of the Korean Fiber Reinforced Plastic Association in his capacity as the association's vice president.

As Executive Director of the Chinese Society for Composite Materials, Chen Shao Jie has been involved in several developmental projects in China that advance the use of composite materials for commercial aviation end use.

"Both recipients of this year's Life Achievement Awards are veteran figures who have made decisive contributions to the advancement of composites developments in Asia. The JEC Group is delighted to honor their achievements this year," Mutel says.

The Winners

The JEC Asia Innovation Awards 2011 ceremony will take place on October 18, 2011 at 4.30pm, during JEC Asia. This year's winners are listed below:

Intermediate Processing Category

Innovation: Cost-competitive carbon fiber composite materials
Winner: Tianhe Resin Co. Ltd. (China)

Chinese manufacturer Tianhe Resin has developed a new sheet molding compound (SMC) technology for manufacturing a cost-competitive carbon fiber composite material suitable for industrial end use. Adopting a new resin thickening system & supplanting the traditional pre-impregnation technique used for most carbon fiber composite materials, Tianhe Resin's technology allows for the compounding of carbon composite materials with up to 55% fiber content. The resulting materials display the high strength & low density properties that offer significant advantages for reducing weight particularly in vehicle part construction, such as bumpers, hood shields, & chassis frame covers.

Eco-Friendly Category

Innovation: Water-based release agent that does not harm the environment
Winner: Münch Chemie International Gmbh (Germany)

Münch Chemie International has developed a new Mikon® series of water-based, solvent-free release agent that allows multiple releases after a single application and shows excellent release and processing properties. The raw materials used are amino-functional polysiloxanes combined with fluorinated functional end groups. These products are integrated into an aqueous matrix by means of an emulsifying process. With this breakthrough development, Münch Chemie has succeeded in developing an environmentally friendly product, which was developed based on the elimination of solvents which are harmful to the environment. The advantages include cost savings, better performance, and the use of release agents that potentially reduce carbon emissions.

Automation Category

Innovation: First robotic system used in the composites industry to replicate operator movements
Winner: Matrasur Composites (France)

Developed by Matrasur Composites, Robomat is the first robotic system used in the composites industry to

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replicate operator movements. Robomat is capable of spraying different materials (release agent, gel coat, barrier coat & resin & fiber glass) by utilizing a continuous material supply system with automatic material change that feeds the desired material at a constant flow rate & controlled temperature. The innovative robotics programming technology reproduces all the movements made by the operator- Matrasur's robot is available in 6, 8, or 10-axis configurations, depending on the application. The key benefits offered by Matrasur include raw material savings, greater productivity with high quality, & improved operator safety.

Software Category

Innovation: Development of a multidisciplinary manufacturing analysis tool
Winner: Magestic Systems Inc. (USA)
Partner: EADS Innovation Works (UK)

TruPLAN, the result of a collaboration between EADS Innovation Works and Magestic Systems, is a multidisciplinary manufacturing analysis tool that provides designers with the capability to test new composite parts against multiple manufacturing methods during the conceptual design phase. This enables them to quickly collect the reliable data required to optimize the design of the part to be manufactured. TruPLAN uses a variety of parameters for each composites process (CNC and robotic automated fiber placement, automated tape laying, hand-layup, and filament winding) and provides the capability to test multiple manufacturing scenarios, determine accurate costs and process time, understand the implications of design choices before production, and ensure the selection of the best method.

Aeronautics Category

Innovation: Core stabilization technology for manufacturing sandwich components
Winner: Hindustan Aeronautics Limited (India)

Hindustan Aeronautics Limited (HAL) has developed a new core stabilization technology for the manufacturing of sandwich components, eliminating the problem of core crush/shifting and reducing part weight by 10-15 percent. HAL's core stabilization technology also leads to a considerable reduction in component fabrication cycle time. The process was approved by the regulatory authorities of India, the Regional Centre for Military Airworthiness (RCMA) and the Director General of Aeronautical Quality Assurance (DGAQA).

Marine Category

Innovation: Infusion process to manufacture a hull with environmentally friendly materials
Winner: Lavender Composites (Australia)
Partners: Sicomin (France) and Amorim Cork Composites (Portugal)

Lavender Composites has developed composites-based marine structures that utilize renewable materials. Using the infusion process to reduce volatile organic compound (VOC) content, Lavender combines Sicomin's GreenPoxy55 and Amorim's CoreCork composite core materials to develop a more environmentally responsible hull design for electric-powered boats, while maintaining the highest performance possible. The structural design of the hull is made up of GreenPoxy epoxy material with high biomass carbon content and the CoreCork core, which is attractive for its natural and sustainable features. This process uses a large quotient of plant-based materials and sets up an extremely low resin absorption rate, reducing overall weight.

Transportation Category

Innovation: A fully molded caravan with lightweight, aerodynamic properties
Winner: Bolwell (Australia)

Bolwell has been working with bonding techniques used in the aerospace industry for transportation applications. These include the design and development of a fully molded, composites-based touring caravan. The Bolwell Edge caravan is lightweight, aerodynamic and rides easily on an independent trailing arm suspension, making it stable, safe and economical to tow. The body is bonded, creating an extremely strong, one-piece waterproof structure, while the moldability of the composite materials enables a clean and uncluttered design.

Infrastructures Category

Innovation: Fully integrated composites water supply system
Winner: Sekisui Chemical Co. Ltd. (Japan)
Partner: Hebei KNT Group (China)

Sekisui Chemical aims to contribute to minimizing water shortage issues in China by providing materials that help in the development of fully integrated composites water supply infrastructures.

These infrastructures contribute to dam construction, maintenance of water service infrastructures, alleviating uneven water distribution, and reducing water leakage rates. Sekisui Chemical's fiber reinforced plastic materials are developed for utilization in large scale water supply systems with large diameter pipes and fittings.

Student Research Category

Innovation: Recycled carbon fiber sheet as textile heating elements
Winner: University of Nottingham (UK)
Partners: University of Nottingham Malaysia Campus (Malaysia) and Technical Fibre Products (UK)

A joint UK collaboration between the University of Nottingham & manufacturer Technical Fibre Products has resulted in the development of recycled carbon fiber sheets as textile heating elements used in garment and food delivery applications. This collaboration also involves polymer research being conducted in the Malaysian campus of the University of Nottingham. The developmental breakthrough is in the processing of the recycled carbon fiber into non-woven sheets that offer high strength & conductivity. The heating fabric is manufactured by sandwiching the conductive sheet with an adhesive Teflon sheet with copper bars crimped to the side for electrical connectivity purposes. Heating garment applications include heating gloves, vests, insoles & hats, while the incorporation of the heating fabric into food delivery bags not only provides flexibility but also robustness & stable heating performance. ■