

# CW

## CompositesWorld

### By land, air and sea: Composites transport satellites



OCTOBER 2018



DOWNLOAD this issue of  
*CompositesWorld*  
in a low-res PDF format  
— [CLICK HERE](#) —

Sneak peek of products and services at CAMX 2018 / 18

VR tools guide designs to the real world / 56

Roof rails — thermoplastics displace aluminum / 64



### Balsa coating system to reduce resin uptake

**CoreLite** (Miami, FL, US) is featuring its next-generation PC11 Pro coating system for its BALSASUD core series. The PC11 Pro coating system was engineered to significantly reduce resin uptake during the lamination process by sealing the pores in the end-grain balsa wood sheet more effectively than the standard PC11 coating system. CoreLite says balsa core resin uptake was compared between the standard PC11 formulation and the newly developed PC11 Pro formulation against non-coated balsa. A typical sheet of non-coated balsa wood core will absorb roughly 1900g/m<sup>2</sup> of resin during infusion. The standard PC11 formulation was able to reduce the resin

uptake by up to 46% to 1020g/m<sup>2</sup>. The new PC11 Pro formulation is said to reduce resin uptake further, to 450g/m<sup>2</sup>. This coating, says CoreLite, can be used in wind, marine, rail, automotive, aerospace, defense and industrial applications. It is compatible with hand lay-up, vacuum bagging and infusion. Booth BB10.

### Boron, SCS silicon carbide monofilaments

**Specialty Material Inc.** (Lowell, MA, US) is showcasing its boron monofilament and prepreg, as well as its SCS silicon carbide monofilament (SiC). Boron monofilament is said to have high compression strength, with typical composite compression strength for boron/epoxy composites in the range of 400 ksi. In addition, it provides high composite tensile strength (220 ksi) and high tensile modulus (28 Msi). Other features of boron fiber are its positive coefficient of thermal expansion (CTE) for space applications, its lack of need for coupling agents in making strong and tough composites, and its absence of galvanic corrosion with aluminum. The company's SCS SiC fibers are said to increase the strength, stiffness and use temperature of titanium matrix composites and provide toughness to ceramic matrix composites. Booth DD33.

### Natural rubber latex bladder fabrication for bladder molding

**Piercan USA Inc.** (San Marcos, CA, US) is featuring its natural rubber latex bladders used in bladder molding for composites fabrication. Bladder molding is the process of manufacturing a composite part using an inflatable natural rubber latex bladder inside a female mold to ensure compaction during the cure of the carbon fiber layup resulting in the finished hollow piece. Piercan manufactures the latex bladder by dipping a male mandrel, supplied by the customer, into its tanks of raw material, and then cure the dipped mold in its oven. Once cured, the formed bladder is then stripped from the mandrel itself. Piercan's bladders can be reused 10-15 times depending on the temperature of cure and complexity of the shape. The bladders can stretch up to 500% and handle up to 800 psi inside a closed cavity. Booth J51.

### Thermoplastic and thermoset compression molding technology

**Langzauner** (Lambrecht, Austria) is exhibiting its Perfect line of hydraulic press technology for thermoplastic and thermoset material processing, as well as its automation of material and mold handling. Langzauner's presses are designed for use with sheet molding compound (SMC), glass mat thermoplastic (GMT), bulk molding compound (BMC), resin transfer molding (RTM), crush core



and thermoplastics like PPS, PEI, PEEK or similar. Press features include maintenance-free cylinder technology, servo/hydraulics with pressure accuracy of ±1%, optimized pump technology, active parallel control, platen heating up to 500°C, automation and robot integration, flexible software, data management and Industry 4.0 compatibility. Booth J23.

### Metal-composite bonding technology

**Structural Composites Inc.** (Melbourne, FL, US) is emphasizing its being awarded the 2018 Defense Innovation Award for its metal hybrid composite technology. The annual TechConnect Defense Innovation Awards recognizes the top 15% of submitted Challenge technologies as ranked by the selection committee. Key to winning the award, and a focus of the company's CAMX exhibit, was Structural Composites' CoCure resins, coatings and adhesives, which form a tenacious bond to metals, allowing the creation of metal hybrid laminates using the same resin as used in the fiber composite layer. Hybrid structures can be created by stamping or forming the shape in thin-gauge metals (70% thinner than used by themselves), and then laminating the metal part with CoCure composite materials. This allows for fabrication of stiff structures at reduced weight, but at costs that can compete with traditional fabrications. The technology is already deployed by Wabash National in the semi-trailer market.

Structural Composites is also featuring the US Navy's 7m Advanced Combatant Craft (7ACC) for Increased Affordability, a rigged-hulled inflatable boat (RIB) the company helped develop, manufactured using its PRISMA composite preforming technology. The boat features innovations in diesel outboard technology that combine with design and material innovations to transform the craft from a single inboard engine platform into a highly capable dual outboard engine performance craft. Booth G62.