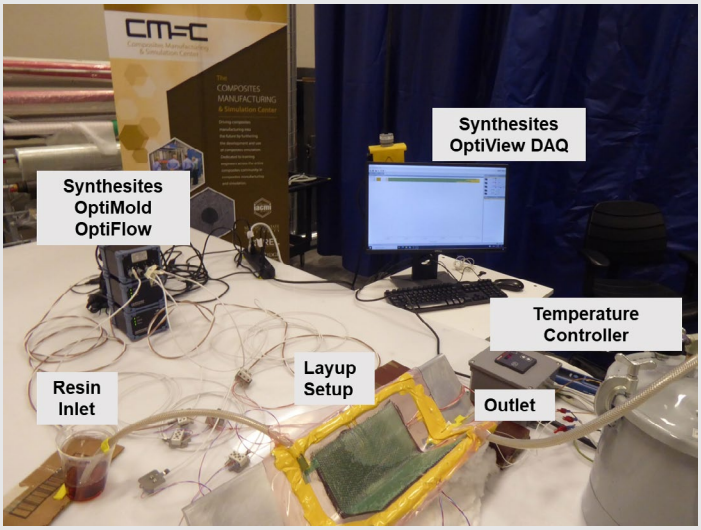
PRESS RELEASE

PURDUE CMSC AND SYNTHESITES

Real-time cure monitoring of infusion and autoclave composite structures

Researchers from Purdue Composites Manufacturing & Simulation Center (CMSC) collaborate with Synthesites, a world leader in the industrial intelligent process (cure and resin arrival) monitoring and control equipment. Through this collaborative work, the team works on real-time cure monitoring of liquid composite molding and autoclave composites manufacturing process, and developing curing simulation with the dielectric cure-data, for predicting the deformation and spring-in in the composite structures. Through the Synthesites system, the CMSC researchers are able to track the resin flow, viscosity, glass transition temperature (Tg) and further optimize the curing process, and implement control measures.



Experimental Set-up at Purdue CMSC for VARTM process of L-Beam using EPON 862/W

CMSC

COMPOSITES MANUFACTURING & SIMULATION CENTER

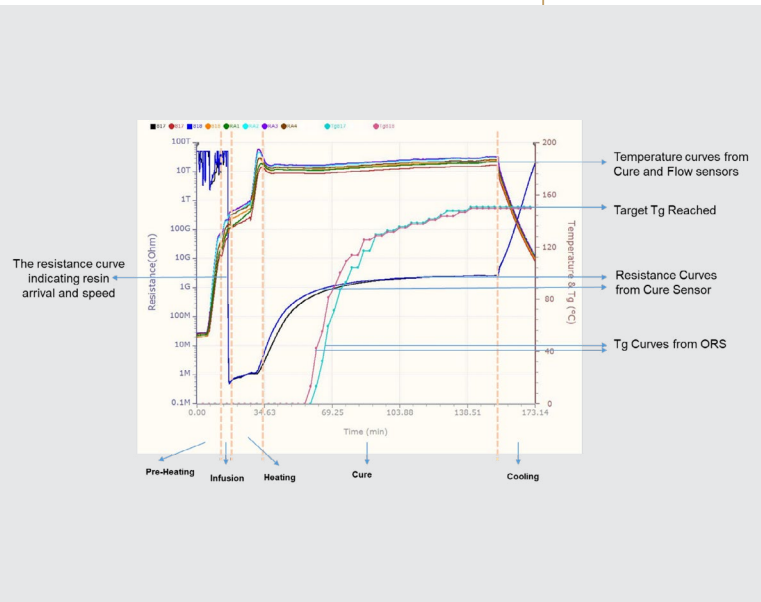
PURDUE CMSC AND SYNTHESITES *Continued*

Purdue CMSC researchers, use the flow sensors for monitoring the resin flow arrival, and temperature at the different critical sections of the composite part. Cure sensors are further employed at the two main critical regions, to track the curing at the inlet and outlet areas. Further, these data are coupled with the Cure-Processing models, to make accurate predictions on the deformation and spring-in of composite structures.

PURDUE'S COMPOSITES MANUFACTURING & SIMULATION CENTER

The Composites Manufacturing & Simulation Center (CMSC) is a bridge between the academic and industrial communities, connecting the global composites industry and Indiana manufacturing to Purdue University. The CMSC research is driven by industry needs and grounded in academic rigor. Global sponsors and partners include aerospace and automotive OEMs, Tier 1 and 2 suppliers, materials suppliers, wind turbine manufacturers, and commercial software providers. The CMSC is a collaboration of the College of Engineering and the Purdue Polytechnic Institute and is a Purdue University Center of Excellence.

State-of-the-art manufacturing and characterization facilities provide a one-stop-shop for composites design, manufacturing, prototyping and model validation. Finally, the CMSC is dedicated to training engineers across the entire composites community in composites manufacturing and simulation.



In-situ Monitoring Results obtained from Synthesites ORS at Purdue CMSC

SYNTHESITES

Synthesites is the world leader in the industrial intelligent process (cure and resin arrival) monitoring and control, working in close collaboration with major composites manufacturers in wind energy, aerospace, automotive and other industrial sectors.

Their advanced dielectric monitoring systems based on the direct measurement of resistivity (DC) and accurate temperature of the resin has attracted great interest from world-leading manufacturing companies. Using the Optimold and Optiflow systems, the monitoring of the resin status such as resin arrival, temperature, viscosity, gelation, degree of cure and Tg can be recorded during product development and/or production using a range of durable and consumable sensors. Quality control issues such as mixing ratio, resin aging and other features can be also monitored and controlled using this technology. The complete product range i.e. electronic equipment, sensors and software are being developed and produced in-house ensuring the high quality and the best performance.