

CEO Note: Wireless Process Monitoring

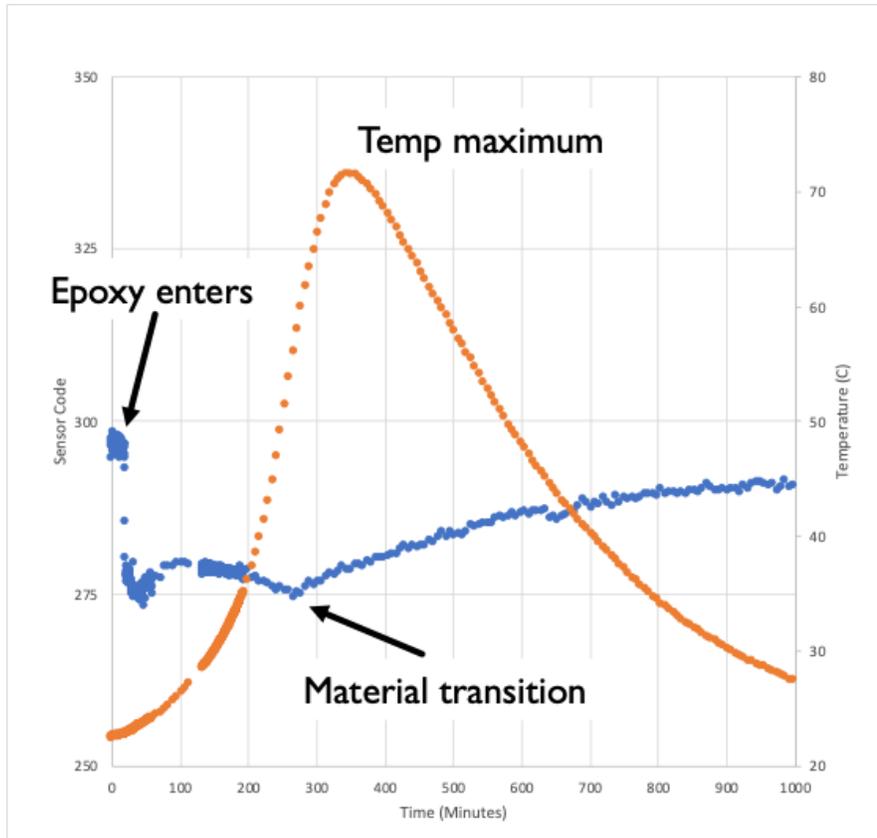
A Series of Messages from our CEO... Jo Major

There has never been more need for passive sensing. An excellent example is the rapidly growing composite materials industry. Used extensively in markets from aerospace to marine to energy, the requirements for composite parts are high. The parts are often of massive scale, having considerable internal structural complexity that evolves during a “blind” manufacturing process. Further, in many applications, a mechanical weakness in the composite is catastrophic. Today, extensive characterization of these products after manufacturing is common, using testing techniques like ultrasound or X-ray, to inspect parts. Failed parts are often scrapped without any value.

Researchers are now working to sense within composite parts during manufacturing, often using wired or optical fiber sensors. These are not convenient and present significant cost issues to manufacturers. A far superior solution is passive sensors that can be detected remotely.



SensThys has worked with Axzon, the world leader in battery-free wireless sensors, to create a highly accurate system that can monitor temperature, moisture, refractive index, material density, and other important material or environmental properties. The system is enabled by a combination of SensThys hardware/software and the Axzon sensors. The system can operate with as much as 10 meters of separation between the system and the sensor. The sensors are powered and controlled by the SensThys hardware. In the figure below, the system has collected key parameters of the material and the temperature at the sensor – at the same time. In this application, the data post-processing allows real-time process control for optimal resin flow and cure time.



The thin profile and small size of the sensors allows great freedom in their use, including being a permanent device within the composite for part identification and field diagnostics.

“Axzon has a world-class ecosystem of capable partners with the expertise to combine hardware, software, and our sensors into a fully integrated solution. SenThys is a unique partner with a deep understanding of what it takes to implement effective passive wireless sensors.” said Shahriar Rokhsaz, Axzon President & CEO. “Axzon, together with SensThys, are ready to solve the toughest data acquisition challenges with battery-free, wireless sensors.”



The world of composite manufacturing is just one example of the uses for these sensors. Ruggedized sensors can be mounted to mechanical items to detect thermal runaway. Sensors can be used in construction materials to check for water ingress. It is beyond the scope of this short note to list all of the applications – please contact us to discuss your sensing needs.

Interested in learning more about these unique connectionless, battery-free sensing solutions?
