

Georgia-Pacific Resins Creates a New Higher Quality Resin with DOE and STATISTICA Enterprise-wide SPC System (SEWSS)

BACKGROUND. Georgia-Pacific Resins, Inc. (GPRI), of Atlanta, GA, is a manufacturer of polymeric materials used in a variety of markets. These materials include adhesives in the wood industry, binders in the aerospace industry, and chemicals used in the manufacture of paper products.

MISSION. Despite the diversity of customers served by GPRI, a consistent theme is voiced in customer surveys. All customers are interested in reduction of variation and the development of more robust products that will allow them more flexibility in their processes. GPRI develops resins at their Research and Development headquarters in Decatur, GA. The resins are then produced at each of 12 plants throughout the US. The R&D group is charged with developing resins with desirable properties for their customers, reducing variation that arises in the production facilities, as well as working with the plant personnel to ensure that the resins manufactured in the plant environments exhibit those properties that they were designed to possess.

THE DECISION TO USE SEWSS. GPRI chose to implement *STATISTICA Enterprise-Wide SPC System (SEWSS)*, developed by StatSoft, Inc., of Tulsa, Oklahoma, because of its comprehensive set of statistical methods and impressive array of supporting graphical tools. GPRI uses *SEWSS* to extract data from its corporate databases, and then to conduct the statistical and graphical analyses necessary to gain understanding about their processes. GPRI, with the help of StatSoft, provides statistics and software training to its R&D personnel, equipping their researchers with the tools and knowledge necessary to continue to develop quality products. The combination of implementation and training helps GPRI adhere to their Continuous Quality Improvement program and improve the consistency and robustness of their resins under varying conditions.

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- Robert Breyer, R&D Group

CHALLENGE. Two critical characteristics effect the quality of GPRI resin: its ability to bond to wood, or percentage of Wood Failure, and the amount of moisture in the wood prior to applying glue, or Moisture Content. Generally speaking, if a resin can be developed that is robust to the environmental condition of Moisture Content, and also can provide a hold with relatively small amounts of resin Spread onto the surface of the wood, this would save GPRI customers both time and money.

RESULTS. The R&D group used the *STATISTICA* software to design an experiment, and to then assess the robustness of several newly developed resins, in comparison with one of their current resins, used as a baseline for comparison. GPRI R&D was able to create a new resin that provided a generally higher surface level (meaning higher percentage of Wood Failure overall) and perhaps more importantly, showed a more consistently high quality performance, across varying levels of spread and Moisture Content.



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