

# **LOOKING AHEAD:**

## **Positioning Yourself to Pursue Future Markets with Flexible Composite Spray Molding (CSM) Equipment Systems**

*Jim Riley and Lutz Heidrich*  
*Hennecke Machinery, Bayer MaterialScience LLC*  
*100 Bayer Road, Pittsburgh, PA 15205*  
*Dr. Ingo Kleba*  
*Hennecke GmbH*  
*Birlinghovener Str. 30, D-53757 Sankt Augustin, Germany*

### **ABSTRACT**

A company who ventures into a new polyurethane spray molding product area or market often experiences a bit of anxiety. Much of this anxiety is brought on by the financial commitment required to purchase the processing equipment. When markets change, your continued success is often determined by the flexibility and production capability of your equipment. The sizeable expenditure for equipment can affect a company's bottom line, good or bad, for many years. With this in mind, the spray molders' goal should be to minimize this risk by opening up as many different product and market opportunities with their equipment purchase as possible. The spray molder needs to purchase spray equipment that is both flexible and versatile and will allow them to pursue new product areas and markets or adapt to a changing market. So, how is all this accomplished? The answer is to purchase a flexible spray equipment system which can produce parts with multiple polyurethane technologies.

Hennecke Machinery, a division of Bayer MaterialScience, has developed a polyurethane spray system (PUR-CSM) which will allow companies to move into new product and market areas with confidence. With five different process capabilities, the Hennecke PUR-CSM spray system enables a molder to run two different parts requiring entirely different polyurethane systems at the same time. A complex part that requires two different polyurethane technologies to meet performance requirements can often be accomplished with only one PUR-CSM machine. The need for two metering machines, two spray mix heads, and two robots are a thing of the past. It is now possible to apply combinations of technologies on one part with this versatile spray system. For example, parts requiring high strength thin walls with enhanced surface characteristics can now be sprayed on one PUR-CSM machine which delivers a combination of two polyurethane systems -- one with chopped glass and the other without.. In the same manner, parts which must have a very high strength-to-weight ratio and a soft "touch" on one surface, or parts that require high-strength thin walls with good acoustical properties can be produced in one pass with various combinations of polyurethane systems and filler materials.

What is required of an equipment system to achieve this flexibility? The mixing system should be robust and capable of processing several chemical systems required for different technologies. Since some technologies require fillers the chemical delivery system must also be capable of utilizing cylinder technology and have certain components hardened to avoid excessive wear. The spray head should be multi-stream to handle more than 1 chemical system for multi-technology parts. The mix head and spray nozzle should be self cleaning and should not require flushing or solvent cleaning. Finally, the spray system must be versatile and deliver different chemicals at widely varying outputs to fully utilize each technology's potential.

Polyurethane spray molding is making it possible for many polyurethane molders to venture into new product areas and markets that were unthinkable in the past. Spraying techniques continue to evolve as markets and product requirements change. Flexible polyurethane delivery equipment has evolved parallel with the market. This new equipment will enable the spray molder to continue to be successful in the future.