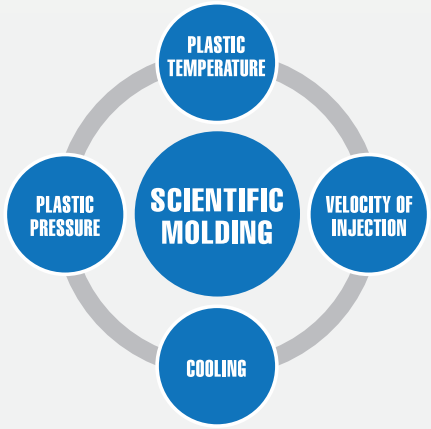

VENTURE PLASTICS, INC.
*Total Solutions for Injection Molded Components and Assemblies*

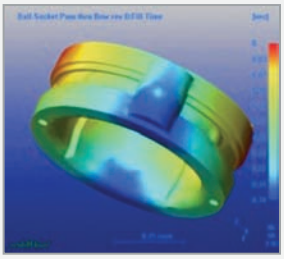
CASE STUDY #14

# Scientific Injection Molding Process Produces Parts of Consistent Quality Regardless of Press Selected

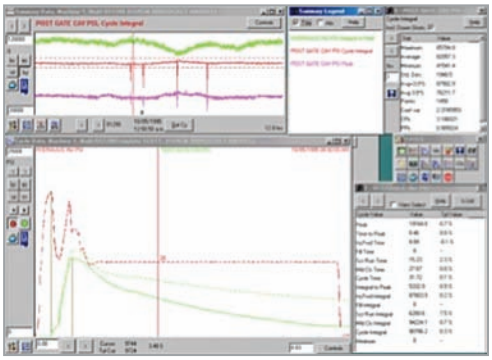



## PROBLEM: ACHIEVING AN EFFECTIVE SCIENTIFIC MOLDING PROCESS:

The Scientific Molding Process is a machine-independent process that provides certain basic parameters for optimization. The scientific process will create the most stable and reliable process possible, based on good fundamental knowledge of the mold, machine and material. It will also process and produce the parts with zero defects. Below are some of the key steps in the process that a good injection molder should be performing:



- Monitor cooling by measuring the coolant temperature in and out of the tool. This enables a lock process to run the same cycle shift after shift.
- Correlate good parts with the process measurements and lock in the process. Use data derived from pressure transducers inside the cavities to activate part segregation.
- Perform a rheology study (study of flow and deformation of matter) with a series of short shots. Data from these shots is used to derive a rheology curve to establish optimum velocity for the first-stage injection. This velocity assures we mold at the best possible viscosity for the mold.
- Optimize the mold by reading cavity pressure performance. Then optimize injection pressure, injection velocity, transfer position, fill time, pack, and hold pressure. Lastly, conduct a gate seal study to determine pack time.
- Once the process is stabilized and acceptable parts are produced, basis data is recorded for the mold. This data is specific to the mold, not the machine.
- This becomes the "Locked Process" for this mold and correlates to the parts submitted to the customer for approval.



## THE SOLUTION: SCIENTIFIC MOLDING BENEFITS

The process allows injection molders to produce parts of consistent quality no matter which press is selected for production. Process parameters are derived from the plastic variables, not the machine variables. The benefits for the customer include: zero defects, consistent part quality based on cavity pressure, a locked process that is based on hard data (not black magic or knob turning), part discrimination (a way of knowing the part is good or bad as molded) and scheduling flexibility.

For more information contact:
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