Beaumont
BEAUMONT TECHNOLOGIES, INC.

TOP 10

Advantages of Rheological Control Systems™

1 10% Faster Cycle Times

Profitability for most molders is governed by how fast they can mold the part. Cycle times are often lengthened due to problems created by filling imbalances. A processor may slow down injection to avoid flash or add a few seconds of hold/cure time to resolve dimensional or warp issues. Since Rheological Control Systems resolve the imbalances develop in melt delivery systems, those extra seconds of hold/cure time are not required. Another processing trick used to help cavities fill completely is to increase the mold and melt temperatures. RCS's have proven to allow processors to run on the low end of the material temperature specs while maintaining a high level of quality in every cavity, thus saving 10% - 50% on cycle time.

Less heat in = less heat out = faster cycle time

2 Avoid Customer Returns

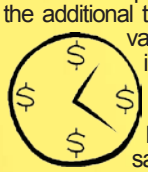
The most common reasons for customer returns are flash, non-fills, and dimensional variations. Regardless of how much inspection is done through the entire production process, if a single non-conforming part reaches your customer the entire lot may be returned for sorting at your cost along with the expensive risk of shutting down your customer's production lines. The key to eliminating customer returns is to prevent the quality issues from happening in the first place. Rheological Control Systems guarantee that the same material properties and process conditions are optimized to and within each cavity, thus minimizing the risk of producing non-conforming parts in the first place.

3 Eliminate 100% inspection

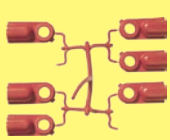
Rather than taking the chance of rejects getting through to the customer, companies may require a 100% inspection on some products. This results in the increased expense of hiring additional staff, or purchasing costly vision inspection or monitoring equipment. It has been proven that the largest source of part quality issues is shear induced material property and filling variations. Rheological Control Systems solve these variations. Once the root cause of the problem is resolved then the need for 100% inspection is eliminated.

4 Reduce mold / part lead-times

One of the main reasons for products not coming to market on time is delays in the mold sampling and approval processes. These delays are often a result of the additional time required to identify and solve the root causes of product variations. These variations are typically caused by filling imbalances, which create different material properties and processing conditions in each cavity. Rheological Control Systems solve those filling variations. By implementing Rheological Control in the initial mold design process, the mold sampling and approval process is shortened which will reduce the overall mold and part lead-times.



5 No more blocked cavities



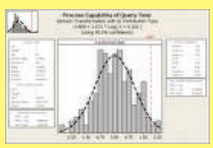
As soon as you block one cavity, the profitability of that mold is greatly reduced. This practice has even forced companies to sell the part at prices that are lower than the actual manufacturing costs. Blocking cavities is a simple and quick fix to keep the mold cycling, but the loss in efficiency and profitability are often ignored or over shadowed by the mentality "we have to get parts to the customer". Rheological Control Systems are a proven solution to help ensure that cavities are not damaged or do not flash due to over-packing or do not fill completely due to viscosity variations. Therefore the mold can run without blocked cavities, and the profitability of the mold is restored.

How many of your molds are running at full cavitation?

6 Decrease flash & non-fill rejects

Flash and non-fills...how many times a week do you hear those words uttered by your QC department? These problems are often a result of material viscosity variations existing within the different mold cavities. Flash commonly shows on the inner cavities of a mold because this is typically where the lower viscosity material flows. The outer cavities receive higher viscosity material, which is harder to push. Rheological Control Systems balance the material viscosities throughout the entire mold. This eliminates the over and under packing conditions which create the flash and non-fill problems.

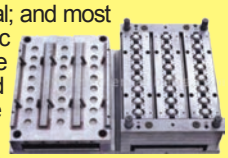
7 Increase Cpk's



Part quality needs to be measured both within a given cavity and from cavity to cavity when using a multi-cavity mold. Variations in material properties and cavity conditions create dimensional variations between the molded parts. Some cavities will run close to or out of the tolerance limits as a result of the material variations. Rheological Control Systems eliminate the material property variations, thereby the mold produces more consistent parts from cavity to cavity. The resultant cavity uniformity ultimately reduces the product variations and increases the Cpk values of the molded parts.

8 Increase cavitation

In order to ensure identical parts from every cavity, there are three critical components to consider: 1) steel conditions, 2) processing conditions, and 3) material conditions. Most mold makers use advanced CNC and EDM equipment to ensure that steel dimensions are identical; and most processors use closed-loop machines and scientific molding principles to ensure processing conditions are consistent. And still managers and engineers are afraid to quote high cavitation molds. Why? - Because of the known quality and efficiency problems created by filling imbalances. Rheological Control Systems eliminate the filling imbalances and provide identical material properties in every cavity. This makes multi-cavity molds more efficient, thus resulting in lower part costs without sacrifices in part quality.



9 Decrease mold maintenance costs

Regional pressure differences within the mold cavities typically cause the tool to wear prematurely, causing flash or problems with inserts breaking in certain cavities. When this happens, the mold must eventually be sent to the tool shop for repair. Here, the tool makers spend a great deal of time replacing inserts and trying to create tighter shut-off conditions in an attempt to eliminate the flash. By balancing the pressures and material properties within all cavities through Rheological Control Systems, the risk of flashing cavities or inserts breaking is greatly reduced. This will naturally decrease the need for additional mold downtime and repair, thereby saving time and money in the overall mold maintenance program.

10 Reduce part sorting costs

Part rejects that are not identified during production mean that the product must be contained and then sorted to eliminate the non-conforming cavities. This is an extremely time consuming and expensive process. The best way to prevent these costs is to reduce the risk of producing non-conforming product in the first place. Rheological Control Systems have shown to eliminate the filling and material property imbalances that create quality issues and the need for part containment.

beaumontinc.com