MeltFlipper® Case Study

Case Study: SYLVANIA

Case Description: Controlling glass fiber lengths and warpage through MeltFlipper® technology

This case study is a follow up to "4-Cavity Parting Line Inject, Automotive Connector" (Figure 1). The material was a glass-filled PBT. Based on BTI's discussions with them, the customer opted to perform a few of their own independent studies. A melt flow analysis and an ash-burn test were conducted to look for variations in flow properties from side-to-side based on high and low-shear material. The runner was analyzed with the artificial balancing versus the MeltFlipper technology.

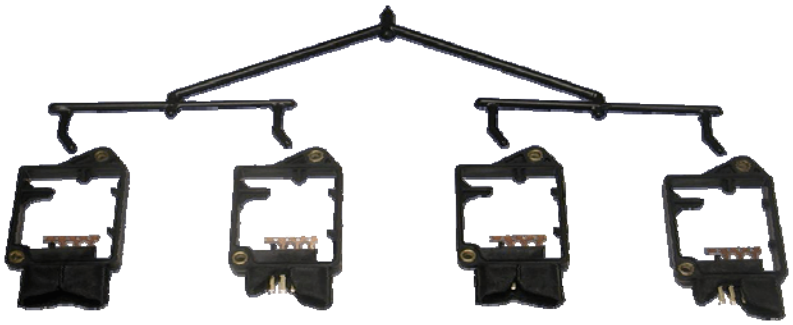

Figure 1: 4 cavity parting line inject automotive connector

The customer was able to confirm that variations existed in the melt flow characteristics from the high sheared vs. low sheared side of the parts. This resulted in packing differences between cavities.

Next, the customer analyzed the data from the ash burn test to look for variation in glass fiber length caused by shear. They reported back to BTI that the average fiber length difference from high shear to low shear side of the part before the MeltFlipper technology was installed to be almost 2:1, which would obviously influence part shrinkage and warp. With the MeltFlipper technology installed, the average fiber length difference was nearly 1:1 (Figure 2). This obviously would create more uniform packing, shrink, and warp between parts, and reduces dimensional variation.

The results again illustrate that the artificial balance cannot compensate for differences in material properties and are a poor solution to variations developed by shear in the runner system. The MeltFlipper technology controls the melt and positions it equally to and within each cavity, thereby creating a true balance of material properties.

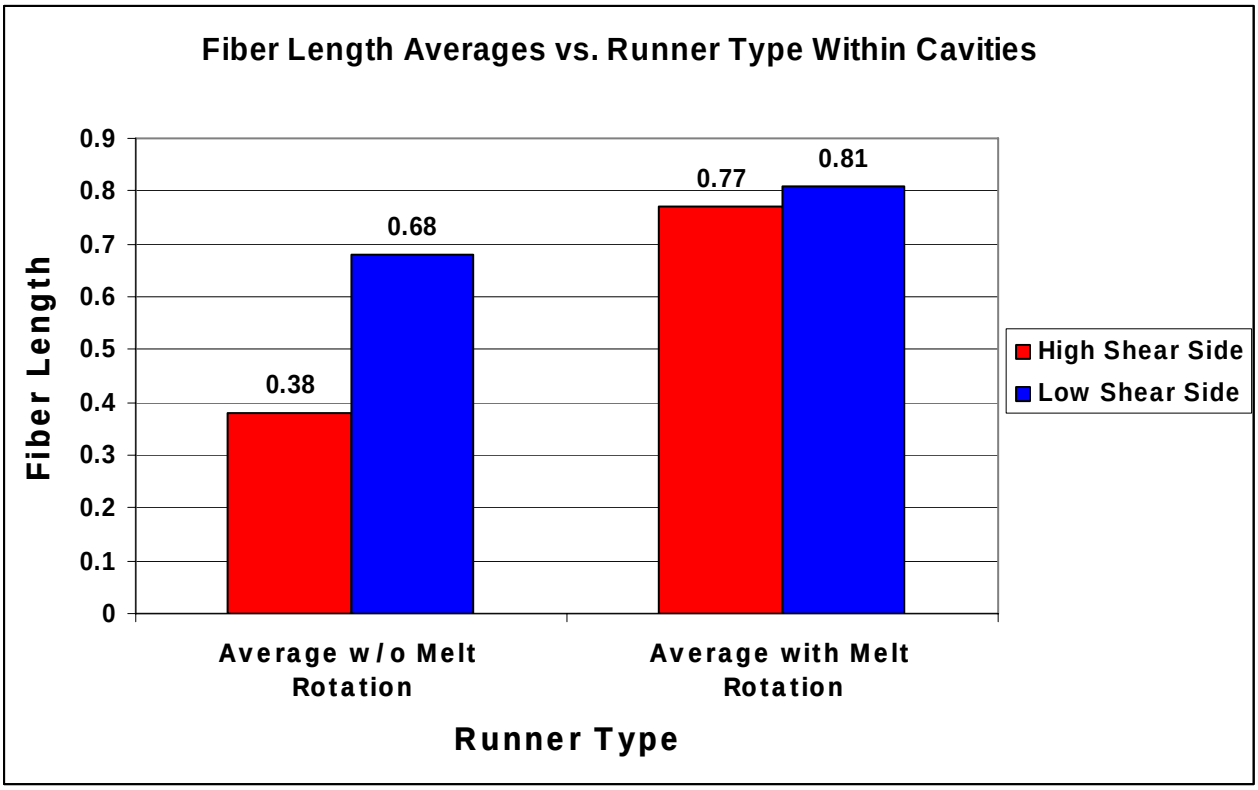

Figure 2: Average glass fiber length results before and after the MeltFlipper® melt rotation technology.