Beaumont

CASE STUDY: *Warpage + Scrap*

100% Scrap Reduction

30% → 0% scrap rate

Case Study Overview

Wilco Molding, Inc. experienced difficulty molding a timing ring for an automatic fire suppression sprinkler flow switch assembly. The part was being manufactured for Potter Electric Signal Company. During molding, the area of the parts closest to the sprue would fill out first due to non-uniform shear flow. When Wilco would fill the remaining portions of the cavities, the first to fill would overpack, causing the part to warp. The rings then would not lay flat in the mating seal component, creating a high scrap rate and making the assembly useless. Mike Van Duine, a General Polymers technical service representative for Wilco, suggested MeltFlipper®. "Most of the industry will try to balance with gate and runner sizing. This method is difficult and would only work at one shear rate/injection speed and does not take into account melt flow variation within raw materials; therefore, MeltFlipper® is a better solution."

Project Description

- 4-cavity mold, 3 gates per part
- Timing ring for fire suppression system
- LNP DF1006 30% glass-filled PC

Problems

- 30% scrap rate
- Warpage due to filling imbalance
- Parts would not mate properly in assembly

Benefits and Cost Savings

- Reduced scrap rate from 30% to 0%
- Wider process window
- Assembly issues eliminated

Filling imbalance due to shear

Uniform filling after MeltFlipper®

"We now have 100% good parts and a much wider process window."
-Kim Williams, General Manager, Wilco Molding, Inc.