

## MOLD FLOW ANALYSIS SOLVES MYSTERY

Adds Insight to Issue | Provides Data for Team | Directs Redesign

**New York, NY - June 1, 2017:** Moving a production line is always a challenge - whether it's across the street or across the globe. And with recent changes in economic and governmental policies, production line moves will continue as companies further capitalize on the cost advantages of off-shoring and re-shoring.

Cost advantages can quickly evaporate, though, when subtle differences in process parameters, operator experience level, or even material suppliers lead to unexpected results. This is exactly the issue a Northeast manufacturer of eyeglass components faced after moving production equipment to Asia.

A significant percent of first production runs showed an obvious molding defect - absolutely unacceptable for this high-end eyewear component because the defect would be readily visible to the customer. Despite best efforts on both sides of the globe, the team could not identify and correct the root cause of the problem.



*First shots from relocated tooling exhibited an unexpected molding defect.*

Kerelaw joined the effort and quickly realized the component design had not been optimized for injection molding. After talking more with the US operators, it came to light that the defect had occurred before in the US, but the experienced operators manually adjusted the process as needed to eliminate the defect real-time. The marginal component design resulted in intermittent quality issues the US operators could process out, but the Asian group, without this 'tribal knowledge', could not.



*Moldflow analysis of the redesign showed a more consistent fill, predicting a better quality part.*

With a fresh perspective, Kerelaw developed a redesign based on best design practices and the specific criteria of the company. Unfortunately, the gate location and runner design could not be changed. But the core pins could be readily redesigned and replaced with little effort and cost. With a change in core pin geometry, Kerelaw introduced important characteristics of quality injection molded parts, such as constant wall thickness, proven to lower the risk of process related defects.

To demonstrate the advantage of the redesign prior to tool rework, Kerelaw ran a mold flow analysis using the component CAD design. The analysis clearly showed a significant process difference between the original design and proposed design, with sufficient confidence to expect an improvement in the level and frequency of the defect. New core pins were installed and - SUCCESS! - production restarted. Though the defect was never fully eliminated, the reject rate ran well below acceptance limits.

How can Kerelaw help you optimize your design?

### Kerelaw Engineering

Based in New York City, Kerelaw Engineering provides Advanced Product Design and Development Services for the consumer, industrial and medical markets. For more information, contact Maureen Lincoln at (718) 994-7378 or visit [www.kerelaw.com](http://www.kerelaw.com)