



PEAK PERFORMANCE COMPOUNDING PROVIDES COLOR STABILITY FOR HIGH TEMPERATURE POLYSULFONE COMPOUNDS

A Customer Success Story

Color plays a vital role in the manufacturing and use of a product or part. Whether it be for brand recognition, consumer aesthetic or product function (i.e. to convey a message such as warning or temperature), color consideration is essential during the manufacturing process to ensure design goals are met and lot to lot consistency is achieved.

The following case study will examine how Peak Performance Compounding, LLC (PEAK) assisted a medical Original Equipment Manufacturer (OEM) in the formulation and manufacturing of a custom pre-colored, Polysulfone part; increasing production yields and substantially lowering manufacturing costs.

Customer Profile: The customer for this development was a leading OEM in the medical device industry. The method of manufacturing was injection molding.

Customer Challenges: The customer was looking to maintain color consistency (blue) during injection molding processing. The part was originally comprised of a high temperature, Polysulfone resin, mixed at the molding press with a blue color concentrate. During the injection molding process, color was diminishing, variation was present and part rejection was reaching as high as 28%. The customer was therefore looking to modify their formulation and process to maintain color consistency from part to part. Doing so would also increase their production yields and significantly reduce manufacturing costs.

The PEAK Solution: PEAK has extensive experience in melt blending colors and polymers using twin screw compounding techniques. Upon examining the customer's formulation and recreating samples it was determined that the color concentrate was losing stability under heat and the colorant was not being evenly dispersed. PEAK therefore recommended reformulating to a pre-color compound, utilizing multiple feeding ports to enhance pigment dispersion and eliminate color variation. This recommendation would utilize a separate compounding process to evenly distribute a high pigment loading prior to injection molding. This recommendation would increase part acceptance (less scrap), reduce set up cost (associated with leftover color concentrate) and increase manufacturing efficiencies.

Peak Performance Compounding, LLC.

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The Outcome: This collaboration successfully resulted in the manufacturing of a high quality, blue Polysulfone compound and subsequently highly consistent injection molded parts. Together we reduced their rejection rate from 28% to less than 1%, providing an estimated annual savings of \$100,000.

For more information on this case study or to discuss how Peak Performance Compounding, LLC can assist with your unique material needs, please email info@peak-pci.com