

Optimizing Performance of Tablet's Direct Compression Process Using Fuzzy Goal Programming

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Abstract : This paper aims at improving the performance of the tableting process using statistical quality control and fuzzy goal programming. The tableting process was studied. Statistical control tools were used to characterize the existing process for three critical responses including the averages of a tablet's weight, hardness, and thickness. At initial process factor settings, the estimated process capability index values for the tablet's averages of weight, hardness, and thickness were 0.58, 3.36, and 0.88, respectively. The L_9 array was utilized to provide experimentation design. Fuzzy goal programming was then employed to find the combination of optimal factor settings. Optimization results showed that the process capability index values for a tablet's averages of weight, hardness, and thickness were improved to 1.03, 4.42, and 1.42, respectively. Such improvements resulted in significant savings in quality and production costs.

Keywords : fuzzy goal programming, control charts, process capability, tablet optimization

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