

Independent Study Title	Optimization of Aggregate Planning for the Adjustment Process in the Manufacture of Inks
Independent Study Credits	6
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Abstract

This industrial research project aims to improve the ink manufacturing process and optimize the production planning in order to increase the manufacturing efficiency. The original method, all pigments are mixed with different colors based on bills of materials in the mixing process. Basically, each pigment requires the different grinding time. Consequently, grinding process time in the next step is set by the longest grinding time of pigment. Therefore, the pigments which have shorter grinding time are remanufactured. Thus, this research rearranges the processes by grinding each pigment before mixing all pigments. The aggregate planning of colors is then developed to optimize time and quantity of colors by applying Mixed Integer Linear Programming. The color production is required to respond to the material requirement planning for printing schedule of three printing machines. As a result, the grinding process time is decreased from 375 hours to 142 hours which is 62% reduction.

Keywords : Aggregate Planning / Ink / Mixed Integer Linear Programming / Process inks