A Linear Constraints Based Mathematical Model for Optimizing the Production Plan of a Mask Factory

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The COVID-19 outbreak has caused a huge demand of masks which can effectively protect people from the virus. However, the raw materials of masks are limited in such a short time. Thus, it becomes urgent for the factory owners to conduct a production plan that can get the highest profit via given raw materials. To solve this problem, this project selected a domestic mask factory as the research object. According to the field research, a single-objective multi-factor optimization mathematical model is built. According to the MATLAB simulation data, the mask factory should reduce the production of disposable medical surgical masks to obtain the maximum profit. Based on the long-term development of business, this paper also optimized the model by artificially setting the production requirement of one kind of masks each time. The optimization results successfully provide factory owners with flexible production guidance under different conditions.

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