

# Application of System Simulation in Automobile Rubber Process Production Configuration—Case Study of A Company

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## **ABSTRACT**

In the global economy of rubber, The demand for rubber products is also growing. In addition, the use of rubber is becoming more and more extensive. Now there are tens of thousands of rubber products in actual application, including rubber, rubber soles, rubber tubes, rubber sealing gasket, electrical insulation material, rubber for shock absorption, rubber for medical use, etc. No matter it refers to transportation, construction, papermaking, medical treatment, national defense, and other industries, it is necessary to use rubber products, which also leads to increase the demand for rubber products in the global market year by year. Rubber has become an indispensable necessity for mankind.

This research takes the automotive rubber industry as the background, because with the increasing market demand, the company's productivity needs to be improved to meet customer needs. First, the company's production line data collection and analysis must be conducted to find out the reasons and bottlenecks that affect the production line's production capacity and find out effective ways to improve the bottleneck to achieve the purpose of increasing production capacity. Since the actual operating conditions cannot be studied through the current production line, this research uses system simulation to establish a simulation model that matches the production line and compares the layout of different production lines. According to the analysis of the production line data, the research on the optimized production

configuration is carried out.

This study recommends to adopt the scenario with the lowest unit cost of Scenario 3, improving the equipment of the secondary bottleneck and increase the working time to improve the bottleneck area. In the future, the overwork time can also be adjusted according to the order status to achieve the production configuration with highest performance. According to this research, it is able to be verified that simulation can be very effective way to help find the production bottleneck of the production line, and can also effectively find suitable cases and improvement plans for the company's production line.

Keyword: Flexsim、System simulation、Bottleneck analysis