Title : Dashboard Development for Analyzing Minimum Order Quantity and Safety Stock Based on Usage and Shelf Life.

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ABSTRACT

Effective inventory management of raw materials with minimum order quantity and expiration constraints is critical for cost control in manufacturing industries, particularly for chemical materials with limited shelf life. This study develops an analytical dashboard to evaluate the appropriateness of Minimum Order Quantity (MOQ) and Safety Stock levels based on material usage and expiration constraints. The analysis utilizes actual procurement data from an electronic component manufacturing company collected between March and August 2025, covering 401 chemical raw material parts. Loss values from excess inventory and MOQ constraints were calculated, and material demand was compared with predefined Safety Stock levels. The results indicate that 180 parts (44.89%) incurred losses from excess inventory, while 9 parts (2.24%) were affected by MOQ constraints. The dashboard provides a data-driven decision support tool to improve inventory management efficiency.