

ABSTRAK

Pengelolaan persediaan material Melt Stick pada Unit 4 PT Steel Pipe Industry of Indonesia, Tbk (SPINDO) berperan penting dalam mendukung proses *repair* pipa 3LPE. Berdasarkan data penggunaan periode 2024–2026, permintaan material menunjukkan karakteristik *intermittent demand* yang ditandai oleh periode tanpa permintaan dan terjadinya *stockout* pada Januari 2026. Kebijakan persediaan perusahaan yang menggunakan jumlah pemesanan tetap sebanyak 200 unit berpotensi menyebabkan kelebihan maupun kekurangan persediaan karena belum mempertimbangkan karakteristik permintaan. Penelitian ini bertujuan menentukan kebijakan pengendalian persediaan yang lebih optimal.

Pola permintaan diidentifikasi menggunakan *Average Demand Interval* (ADI) dan *Coefficient of Variation Squared* (CV^2). Selanjutnya dilakukan perbandingan metode peramalan Croston, Syntetos–Boylan Approximation (SBA), dan Teunter–Syntetos–Babai (TSB). Metode dengan nilai kesalahan peramalan terendah digunakan sebagai dasar penerapan model *Continuous Review* (Q,R) Hadley–Whitin untuk menentukan *order quantity*, *reorder point*, dan *safety stock*.

Hasil penelitian menunjukkan bahwa metode Syntetos–Boylan Approximation (SBA) menghasilkan kinerja peramalan terbaik. Penerapan model *Continuous Review* (Q,R) Hadley–Whitin menghasilkan *order quantity* optimal sebesar 94 unit dan *reorder point* sebesar 158 unit. Kebijakan usulan menurunkan Total Inventory Cost (TIC) dari Rp11.723.465,50 menjadi Rp8.405.385,75 atau memberikan efisiensi biaya persediaan sebesar 28,30% dibandingkan kebijakan perusahaan. Dengan demikian, metode *Continuous Review* (Q,R) Hadley–Whitin dapat menjadi alternatif pengendalian persediaan yang lebih efisien serta mendukung SDGs Tujuan 9 (*Industry, Innovation and Infrastructure*) dan Tujuan 12 (*Responsible Consumption and Production*).

Kata Kunci: Pengendalian Persediaan, *Continuous Review* (Q,R), *Intermittent Demand*, Peramalan, Melt Stick, SDGs.

ABSTRACT

Inventory management of Melt Stick material at Unit 4 of PT Steel Pipe Industry of Indonesia, Tbk (SPINDO) plays an important role in supporting the 3LPE pipe repair process. Based on material usage data from 2024 to 2026, the demand pattern exhibits intermittent demand characteristics, indicated by periods of zero demand and the occurrence of stockouts in January 2026. The company's current inventory policy applies a fixed order quantity of 200 units without considering demand characteristics, potentially resulting in excess inventory or stock shortages. Therefore, this study aims to determine a more optimal inventory control policy.

The demand pattern was identified using the Average Demand Interval (ADI) and Coefficient of Variation Squared (CV^2). Subsequently, the forecasting performance of the Croston, Syntetos–Boylan Approximation (SBA), and Teunter–Syntetos–Babai (TSB) methods was compared. The forecasting method with the lowest forecasting error was selected as the basis for implementing the Continuous Review (Q,R) Hadley–Whitin model to determine the optimal order quantity, reorder point, and safety stock.

The results indicate that the Syntetos–Boylan Approximation (SBA) method provides the best forecasting performance. The proposed Continuous Review (Q,R) Hadley–Whitin model recommends an optimal order quantity of 94 units and a reorder point of 158 units. The proposed inventory policy reduces the Total Inventory Cost (TIC) from IDR 11,723,465.50 to IDR 8,405,385.75, resulting in an inventory cost efficiency of 28.30% compared with the company's existing policy. Therefore, the Continuous Review (Q,R) Hadley–Whitin model can serve as an alternative inventory control policy to improve inventory cost efficiency while supporting the achievement of Sustainable Development Goals (SDGs), particularly Goal 9 (Industry, Innovation and Infrastructure) and Goal 12 (Responsible Consumption and Production).

Keywords: *Inventory Control, Continuous Review (Q,R), Intermittent Demand, Forecasting, Melt Stick, Sustainable Development Goals (SDGs).*