

***ANALYSIS OF INVENTORY CONTROL EFFICIENCY FOR
NON-METAL MATERIALS USING THE EOQ METHOD IN THE
CN212I AIRCRAFT AT PT DIRGANTARA INDONESIA***

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Abstract

This study analyzes the efficiency of non-metal inventory control in the production of CN212i aircraft using the Economic Order Quantity (EOQ) method. EOQ is applied to determine the optimal order quantity that minimizes total inventory costs while maintaining adequate material availability, addressing issues such as overstock, stockout, and high storage costs due to the lack of structured, analysis-based inventory policies, particularly for imported non-metal materials with varying lead times. This quantitative descriptive study was conducted at PT Dirgantara Indonesia during 2023–2025, using secondary data from company documents and interviews to strengthen the analysis. The EOQ results for Aramid Epoxy were 15,515 mm², with a safety stock of 92,020,177 mm² and a reorder point of 92,027,573 mm²; for Polyester Fabric, EOQ was 3,871 mm², safety stock 1,403,587 mm², reorder point 1,405,071 mm²; for Polycarbonate, EOQ was 16,637 mm², safety stock 4,344,232 mm², reorder point 4,351,890 mm². The analysis shows that EOQ improves ordering efficiency, reduces total inventory costs, and supports more accurate planning. The study is limited to certain non-metal materials for CN212i in a specific period, and future research should consider other materials or aircraft types for more comprehensive and generalizable results.

Keywords

Economic Order Quantity (EOQ), inventory control, non-metal materials, safety stock, reorder point, total inventory cost.

ANALISIS EFISIENSI PENGENDALIAN PERSEDIAAN MATERIAL NON-METAL DENGAN METODE EOQ PADA PESAWAT CN212I DI PT. DIRGANTARA INDONESIA

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Abstrak

Penelitian ini menganalisis efisiensi pengendalian persediaan material *non-metal* dalam produksi pesawat CN212i menggunakan metode *Economic Order Quantity* (EOQ). Metode EOQ diterapkan untuk menentukan jumlah pemesanan optimal yang meminimalkan total biaya persediaan sekaligus menjaga ketersediaan material, mengatasi permasalahan *overstock*, *stockout*, dan tingginya biaya penyimpanan akibat belum adanya kebijakan pengendalian persediaan berbasis analisis, khususnya untuk material *non-metal* impor dengan variasi *lead time*. Penelitian deskriptif kuantitatif ini dilakukan di PT Dirgantara Indonesia pada 2023–2025 dengan data sekunder dari dokumen perusahaan dan wawancara untuk memperkuat analisis. Hasil EOQ untuk *Aramid Epoxy* sebesar 15.515 mm², dengan *safety stock* 92.020.177 mm² dan *reorder point* 92.027.573 mm²; untuk *Polyester Fabric* EOQ 3.871 mm², *safety stock* 1.403.587 mm², *reorder point* 1.405.071 mm²; untuk *Polycarbonate* EOQ 16.637 mm², *safety stock* 4.344.232 mm², *reorder point* 4.351.890 mm². Analisis menunjukkan penerapan EOQ mampu meningkatkan efisiensi pemesanan, menurunkan total biaya persediaan, serta mendukung perencanaan lebih akurat. Keterbatasan penelitian ini adalah fokus pada beberapa jenis material *non-metal* CN212i dalam periode tertentu, sehingga penelitian selanjutnya disarankan mempertimbangkan material lain atau tipe pesawat berbeda untuk hasil lebih komprehensif dan dapat digeneralisasikan.

Keywords *Economic Order Quantity* (EOQ), pengendalian persediaan, material *non-metal*, *safety stock*, *reorder point*, *total inventory cost*.