ABSTRACT

PLANNING ANALYSIS OF LIME INVENTORY IN REFINED SUGAR PRODUCTION PROCESS AT PT SUGAR LABINTA USING EOQ AND POQ METHODS

By

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PT *Sugar Labinta is an industry processing raw sugar into refined sugar.* PT *Sugar Labinta requires lime as an auxiliary material in the process of refining raw sugar into refined sugar. Lime control at* PT *Sugar Labinta is carried out conventionally. Optimal material inventory control will have an impact on the production process and the efficiency of inventory costs. The method that can be used to minimize the cost of raw material inventory is the* EOQ *and POQ methods. The purpose of this study was to determine the number of orders for raw materials, safety stock, reorder points, order frequency, forcasting and total inventory cost (*TIC) *by applying the* POQ *and* EOQ *methods. The application of the EOQ method in 2018 resulted in an order quantity of 282.02 tons, frequency of 36 times, safety stock of 10.43 tons, reorder point at 67.22 tons, and TIC of Idr.8,268,720. In 2019 resulted in an order quantity of 318.45 tons, frequency of 37 times, safety stock of 10.93 tons, reorder point at 75.78 tons, and TIC of Idr 8,720,087. In 2020 resulted in an order quantity of 348.44 tons, frequency of 37 times, safety stock of 10.93 tons, reorder point at 75.78 tons, and TIC of Idr. 9,058,721. The application of the POQ method in 2018 resulted in an order quantity of 282.41 tons, frequency of 36 times, safety stock of 10.43 tons, reorder point of 67.22 tons, and TIC of Idr.7,962,740. In 2019 resulted in an order quantity of 318.9 tons, frequency of 37 times, safety stock of 10.93 tons, reorder point at 75.78 tons, and total inventory cost of Idr 8,419,008. In 2020 resulted in an order quantity of 358.93 tons, frequency of 37 times, safety stock of 10.93 tons, reorder point of 75.78 tons, and TIC of Idr 8,837,150. In 2021 and 2022, demand forecast is carried out using double exponential smoothing method, then inventory control is carried out using the EOQ and POQ methods. Forcasting for 2021 obtain demand of 13,175.63 tons with TIC of Idr. 9,146,331 on the EOQ method and Idr. 9,133,620 on the POQ method. In 2022 obtained demand forecast of 13,440.04 tons with TIC of Idr 9,420,592 on the EOQ method and Idr 9,407,498 on the POQ.*

Keywords: order frequency, EOQ method, POQ method, double exponential smoothing method, safety stock, reorder point, total inventory cost.

ABSTRAK

ANALISIS PERENCANAAN PERSEDIAAN BAHAN KAPUR PADA PROSES PRODUKSI GULA RAFINASI DI PT SUGAR LABINTA MENGGUNAKAN METODE EOQ DAN POQ

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PT Sugar Labinta merupakan industri pengolahan *raw sugar* menjadi gula rafinasi. PT Sugar Labinta memerlukan bahan pembantu kapur dalam proses pemurnian *raw sugar* menjadi gula rafinasi. Pengendalian bahan kapur di PT Sugar Labinta dilakukan secara konvensional. Pengendalian persediaan bahan yang optimal akan berdampak pada jalannya proses produksi maupun efisiensi biaya persediaan. Metode yang dapat dilakukan untuk meminimalisasi biaya persediaan bahan baku yaitu dengan metode EOQ dan POQ. Tujuan penelitian ini adalah mengetahui jumlah pemesanan bahan baku, *safety stock*, *reorder point*, frekuensi pemesanan, peramalan, dan *total inventory cost* dengan menerapkan metode POQ dan EOQ. Penerapan metode EOQ tahun 2018 menghasilkan kuantitas pemesanan 282,02 ton, frekuensi 36 kali, *safety stock* 10,43 ton, *reorder point* 67,22 ton, dan *total inventory cost* Rp8.268.720. Tahun 2019 menghasilkan kuantitas pemesanan 318,45 ton, frekuensi 37 kali, *safety stock* 10,93 ton, *reorder point* 75,78 ton, dan *total inventory cost* Rp8.720.087. Tahun 2020 menghasilkan kuantitas pemesanan 348,44 ton, frekuensi 37 kali, *safety stock* 10,93 ton, *reorder point* 75,78 ton, dan *total inventory cost* Rp9.058.721. Penerapan metode POQ tahun 2018 menghasilkan kuantitas pemesanan 282,41 ton, frekuensi 36 kali, *safety stock* 10,43 ton, *reorder point* 67,22 ton, dan *total inventory cost* Rp7.962.740. Tahun 2019 menghasilkan kuantitas pemesanan 318,9 ton, frekuensi 37 kali, *safety stock* 10,93 ton, *reorder point* 75,78 ton, dan *total inventory cost* Rp8.419.008. Tahun 2020 menghasilkan kuantitas pemesanan 358,93 ton, frekuensi 37 kali, *safety stock* 10,93 ton, *reorder point* 75,78 ton, dan *total inventory cost* Rp8.837.150. Tahun 2021 dan 2022 dilakukan peramalan permintaan menggunakan metode *double exponential smoothing* kemudian dilakukan pengendalian persediaan menggunakan metode EOQ dan POQ. Tahun 2021 menghasilkan peramalan permintaan 13.175,63 ton dengan *total inventory cost* Rp9.146.331 pada metode EOQ dan Rp9.133.620 pada metode POQ. Tahun 2022 menghasilkan peramalan permintaan 13.440,04 ton dengan *total inventory cost* Rp9.420.592 pada metode EOQ dan Rp9.407.498 dengan metode POQ.

Kata kunci: frekuensi pemesanan, metode EOQ, metode POQ, metode *double exponential smoothing, safety stock, reorder point, total inventory cost.*