



**PLYWOOD RAW MATERIAL INVENTORY CONTROL ANALYSIS
USING THE METHOD *ECONOMIC ORDER QUANTITY (EOQ)*
AT PT. AKT INDONESIA
ETERNAL**

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ABSTRACT

This study aims to determine whether the Economic Order Quantity (EOQ) Method can be used as a Control of Raw Material Inventory at PT.AKT Indonesia. This research was conducted by calculating and comparing the inventory control methods according to company policy with the Economic Order Quantity (EOQ) method.

This research is a case research type. The data collection techniques used were interviews, observation, and documentation. The data analysis techniques used in this research are: (1) Collecting information about the amount of raw material inventory in 2019. (2) Processing this data to determine the control of raw material supplies based on company policy. (3) Analyzing the processed data using the Economic Order Quantity (EOQ) method.

The research results prove that the Economic Order Quantity (EOQ) is more efficient than the method used by the company. The application of the Economic Order Quantity (EOQ) method can reduce the total costs incurred by the company, which is Rp. 24,461,544. With this EOQ method can avoid delays in the supply of raw materials, because the supply of raw materials can be ensured to be constant and according to lead time . So to achieve the research objectives, companies should use the Economic Order Quantity (EOQ) method.



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1. Introduction

The many industries that are developing in Indonesia today must be supported by good and disciplined management, in order to survive in the competition of the industrial world. One of them is by handling Inventory Control. Inventory control is a very important managerial function, because inventory involves the largest rupiah investment. Companies that invest too much money in inventory will cause excessive storage costs, and may have " *Opportunity Cost* " (funds can be invested in more profitable investments). Excessive inventory in the warehouse will increase the risk of loss and damage to goods. Companies that do not have sufficient inventory can result in increased costs caused by lack of raw materials.

PT. AKT Indonesia is company manufacturing that produces tool instrument ukulele music made from base *plywood* . The company has not own the right method in do purchase or booking material standard . Based on observation early in PT. AKT Indonesia, can known that control supply material standard in PT. AKT Indonesia is still use method calculation traditional . With method calculation traditional said , then frequency purchase material standard in One period , time purchase , quantity material purchased raw materials in every time you purchase ,

minimum amount of ingredients standard that must be There is in supply safety (*safety stock*), and when done booking return or *reorder point* material standard No can determined with right . With Not yet existence method proper purchasing and ordering impact on the production process which often stopped . Raw materials are priority main and very vital for a industry in the production process . Many companies do various method For manage supply material standard Because matter This .

Availability material standard is very important smooth production process , so that No seldom management forced multiply supply material standard as anticipation if there is a production process or request No determined (determined) probabilistic). Management material standard is very important For overall performance from every interest manufacturing (Akindipe , 2017). Parties management must realize consequence logical existence excessive material inventory , namely the emergence other costs . Need to be looked for One methods that can minimize supply as well as at a time capable increase productivity useful production For balancing between need with desire For save cost consequence fulfillment . Methods that can be support smooth production and inventory processes is *material management*.

Review Literature

Understanding Control

According to (Handoko, 2012), control is the largest rupiah investment involving Lots company For supply physique Because is a very important managerial function .

According to (Fahmi, 2014), good control is a prevention concept that can be applied to provide detection power for various conditions that occur, where the event is felt to be different from usual.

Meanwhile, according to (Terry, 2011), control can be interpreted as a step in the process of determining what must be achieved, namely according to standards, what is currently running, namely when implementing, reviewing the implementation and if necessary carrying out periodic improvements.

Understanding Supply

Supply material standard will always required by all companies that implement activity production . Production process in accordance demand and needs consumer expected Can fulfilled according to schedule. In addition expected Can avoid from the occurrence lack material standard and can to smooth activity a production with existence supply material sufficient standard and fits inside

warehouse . (Ristono , 20013) defines supply Can has the meaning as stored items For used or sold during or future period . Inventory among them is supply goods So , stock half finished and stock material standard .

According to (Darmawan, 2015), inventory is a objective certain in a company that can fulfilled and used with a number of existing items in warehouse . Stock Can in the form of ethnic group spare parts , goods So , stuff in process, materials servant or material raw . Without supply a company can almost stated No Can operating , even though indeed supply usually a idle source of funds , but continuity activity company can be influenced by him . To be precise target must Can control it .

Whereas according to (Herjanto , 2010) supplies is For reach objective certain Can use blood or materials that have been stored . (Margaretha, 2011) stated that inventory/ supplies is For guard smooth running of company processes use Can fulfil request consumer every time a number of goods must always provided by the company , either in the form of goods So , the material raw , or goods in process. The term inventory is term general which shows all something or source Power saved organization in anticipation in fulfillment request (Handoko, 2012).

Control Supply

In most cases company , listed in balance sheet the big part is supply . Problems that arise in company consequence too much stock small or too large . The costs incurred too big consequence existence too much stock big . Cost booking will the more tall consequence too much stock small and will bother the way smooth production process . For that , use minimize costs and prevent existence congestion in production required existence control to company or material management .

According to (Assauri , 2008), the definition control supply is :

Control supply Can concluded as a activity For find level and composition from supply material raw materials , parts, and goods production as well as needs company with effective and efficient including spending .

Control supply No only fixated on regulation and supervision on implementation procurement goods or Required Ingredients in accordance with amount time required as well as with the lowest possible cost but also in determining or planning level and composition supplies . The more big amount inventory owned by a company , then the more No efficient control supplies . Because it is very necessary in control supply company must consider flexibility and level supply .

Economic Order Quantity (EOQ)

Economic Order Quantity (EOQ). According to (Riyanto, 2011) *Economic Order Quantity (EOQ)* is amount optimal purchase or often stated amount quantity materials obtained with fare or minimized costs .

Whereas according to (Assauri , 2008) *Economic Order Quantity (EOQ)* is number of orders or orders that have the most optimal ordering costs and carrying costs per year . (Heizer & Render, 2011) defines *Economic Order Quantity (EOQ)* is One from that's all Lots technique control *inventory* minimization total cost of *ordering* and storage , techniques the easy used But still based on to a number of assumptions :

1. Request known constant , and independent from the amount .
2. Waiting time that is constant and known time between *ordering* and receiving order .
3. Done entirely and in nature instant For reception goods . In other words, deep One group on one time coming supply from a order .
4. Discount amount goods No Once available .
5. Cost variable only in the form of cost For preparation or carry out ordering and cost storage supply time certain .

6. Out of stock stock (shortage stock) if implemented at the right time can avoided completely .

According to (Hansen & Mowen, 2013) how many quantity order other Possible resulting in a higher total cost low . The goal is determine quantity the order that will be minimize total cost . Quantity order This called with quantity order economical (*Economic Order Quantity*).

According to (Salesti , 2014) for fulfil amount the most economical order (purchase) is used use formula under This :

$$EOQ=2.D.SH$$

Where :

D=Total Raw Material Usage

S= Cost booking every time you order (Rp)

H= Cost storage

2. **Frequency Ordering Raw Materials**

According to (Nilwan , 2011) for determine frequency purchase goods most profitable trade can done with share need goods merchandise during One period with purchase goods optimal trade . According to (Robyanto & Dewi, 2013) then formulated as following :

Frequency purchase = RUEOQ

RU=Total Raw Material Usage

EOQ= Quantity order or purchase economical

3. **Safety stock**

According to (Hansen & Mowen, 2013), "Safety Stock is is supply extra done For serve insurance to fluctuation request". While according to (Assauri , 2008) " Inventory savior (*Safety Stock*) is supply For add use For protect or guard If existence lack materials (*stock out*)".

If finally minimum stock or *safety stock* intended as safety For ensure continuity of production process . Inventory safety is For guard when There is stock out occurs or lack material as well as held as protector . According to (Assauri S. , 2004) possibility there may be a stock out caused by Because delay coming goods or use material which more big from estimation beginning . With existence supply security then the production process in company will walk without existence constraint absence existence material standard . Although material standard ordered company come late from period specified time .

According to (Robyanto & Dewi, 2013) it is formulated as following :

Safety Stock=Average delay material standard per day

X needs material standard per day

4. **Reorder Point**

Reorder Point (ROP) in connection with the existence of lead time and safety stock points booking must done which is part from the operational strategy inventory (Rangkuti , 2004). while (Assauri , 2008) said that " in determine *reorder point* We always notice How many usage goods during goods that have been ordered Not yet come and stock up lowest or minimum" (Sudana , 2011) *ReOrder Point (ROP)* is at the point or at the level how many orders should be run so that goods come appropriate as desired .

So it can it is said that determination *Reorder Point* can done with method set use during the lead time is added up *safety stock*.

According to (Heizer & Render, 2011) ROP can counted with formula following :

$$\text{ROP} = D \times L + \text{SS}$$

Information :

ROP= Point booking back (Reorder Point)

D= Amount requirement per unit time

L=Length of time wait (Lead time)

SS=Safety Stock

5. **Maximum Inventory**

According to Assuari (Assuari , 2008), “ inventory maximum is the limit of the number the largest stock that should be can relied on by the company ”.

Supply maximum This intended for the company can avoid losses Because existence material excessive standards , so that can cause sufficient cost big . Stock the maximum that is best owned company is amount from order standard added the magnitude minimum stock (*safety stock*).

Supply maximum required for it to happen waste or over working capital so that the inventory is in a company No excessive .

According to (Robyanto & Dewi, 2013) As for know the magnitude supply maximum can used formula :

$$\text{Maximum Inventory} = \text{SS} + \text{EOQ}$$

Information :

SS=Safety Stock

EOQ= Quantity Booking or Purchase Economical

6. **Total Inventory Cost**

Total Inventory Cost (TIC) is the total cost supplies issued For booking Economic / *Economic Order Quantity* . According to (Yamit & Yulian, 2008) the cost supply based on relevant economic parameters with type cost as following :

1. Cost purchase (*purchase cost*) is process cost per unit If processed in the company or price per unit if goods from party outside when buy it .
2. Cost booking (*Order cost/set up cost*) is cost when preparation /set up cost if the item is processed in the A company or ordering costs from suppliers regarding purchase .
3. Cost save (*carrying cost/holding cost*) is costs incurred go out on investment in inventory and maintenance means physique For activity storage .
4. Cost lack supply (*stock out cost*) is from in company and from outside company always own consequence economical on lack of goods .

Total of all cost optimal ordering . According to (Buffa, 1991) in count cost supply For purchase material used formula as following :

$$\text{TIC} = 2 \cdot \text{DSH}$$

Where :

TIC=Total Inventory Cost

D= Amount need material standard dive per year (pcs)

S= Cost message For every Order (Rp)

H= Cost rate storage per unit each period Rp

7. **Efficiency Cost**

According to (Robyanto & Dewi, 2013) calculating efficiency cost inventory achieved before and after the holding of analysis effective inventory .

Efficiency cost = TIC before EOQ-TIC after EOQ

Where :

TIC=Total cost supply

EOQ= Quantity economical purchase

2. Methodology

Methods applied in the research This use :

1. Research Field (*Field Work Research*)

a. Observation

Observation is a method or A method that analyzes and conducts recording in a way systematic about behavior in demand with observe individual in a way directly (Basuki, 2010). With technique This researcher collect the necessary data in a way direct to object study For get more data accurate .

b. Interview

Interview is method collect data when researcher want to carry out studies introduction For invention A the problem you want to solve researched , or also if researcher want to get things from more respondents deep and accurate (Sugiyono , 2014). With technique This researcher do interview direct to the party concerned For collect data and information For completeness of existing data .

c. Documentation

Documentation that is notes A events that have occurred passed in the form of writing, pictures or monumental works of someone (Sugiyono , 2014). With technique This researcher gather documentation in the form of description general PT. AKT Indonesia for complete the existing data .

2. Research Literature (*Library Research*)

Study literature is results writing the author referred to in the body of the text which includes the names of the authors and the year publication in brackets in the form of books and journals scientific (Kuncoro , 2009). Research literature in study This in the form of existing books , journals and theses the relation with study This .

Data Analysis Techniques

Triangulation

Triangulation has a technical meaning collection of existing data characteristic merge from various data sources that have been obtained For test data credibility with method check from various data source (Sugiyono , 2015). In the research This use method triangulation that is triangulation theory . According to (Moleong , 2005), in triangulation theory This researcher do data checking with use perspective theory in covers the problems studied .

Data analysis

1. Data Reduction

Reducing the same data matter his with summarize , select the essentials and focus on what is important and what is not to include things that are not necessary (Sugiyono , 2015).

2. Data Display

Data collected after noted in a way detailed and thorough Then data presentation can implemented in form description brief , tables , graphs , charts , and the like (Sugiyono , 2015).

3. Conclusion Drawing (Verification)

After the data is displayed in form description short , tables, graphs , charts , and the like Then done withdrawal conclusion and verification (Sugiyono , 2015).

3. Results and Discussion

Purchase of Raw Materials

According to interview with Head of Division PT. AKT Indonesia's secretariat is one of the company manufacturing that produces tool instrument ukulele music , materials the standard used is *plywood* . PT. AKT Indonesia carries out procurement material standard thread with booking a month very from suppliers in the Probolinggo area who have do contract Work .

According to Ekasari (2015) Data that has been got from company the regarding usage data material standard 2019 selected in accordance with assumptions implementation method *Economic Order Quantity (EOQ)* that is ,

- Only one type /item of goods (products) that are taken into account .
- Purchase price materials per boarding house unit .
- Materials needed always is at in the market every moment required .
- Lead time is constant .
- Every order/ order got in very shipping and direct can used .
- There are only 3 types costs , namely : price goods , costs save , and cost message .

From the assumption the so be chosen material standard in the form of *Plywood* . The data obtained from company can seen in the table under This :

Tabel 4.1
Pembelian Bahan Baku Plywood Tahun 2019

No.	Bulan	Jumlah (Pcs)(1)	Harga/Pcs (Rp) (2)	Pembelian (Rp) (3)=(1)x(2)
1	Januari	18679	27200	508068800
2	Februari	17024	27200	463052800
3	Maret	17071	27200	464331200
4	April	17035	27200	463352000
5	Mei	17860	27200	485792000
6	Juni	16114	27200	438300800
7	Juli	19623	27200	533745600
8	Agustus	18744	27200	509836800
9	September	18043	27200	490769600
10	Oktober	18800	27200	511360000
11	November	18001	27200	489627200
12	Desember	18279	27200	497188800
	Jumlah	215273	326400	5855425600
	Rata-rata	17939.41667	27200	487952133.3

Sumber.: Data Primer 2019 yang diolah.

Tabel 4.2
Sisa Penggunaan Bahan Baku Plywood Tahun 2019

No	Bulan	Jumlah (Pcs) (1)	Penggunaan (Pcs) (2)	Sisa Penggunaan (Pcs) (3)
1	Januari	18679	17940	739
2	Februari	17024	16612	412
3	Maret	17071	16723	348
4	April	17035	16635	400
5	Mei	17860	17462	398
6	Juni	16114	15753	361
7	Juli	19623	19231	392
8	Agustus	18744	18360	384
9	September	18043	17742	301
10	Oktober	18800	18395	405
11	November	18001	17575	426
12	Desember	18279	17926	353
	Jumlah	215273	210354	4919
	Rata-rata	17939.41667	17529.5	409.9166667

Sumber.: Data Primer 2019 yang diolah.

To determine the amount of raw material purchases with 1 order in one month, then in one year the company makes 12 orders and can be calculated as follows:

Biaya pesan dan Biaya simpan Bahan Baku <i>Plywood</i> Tahun 2019	
Biaya Pesan	
1) Biaya Telepon dan <i>faximile</i>	
a) Biaya telepon (20 Menit x Rp. 750,455 x 12 kali pemesanan = Rp. 180.061,2	
b) Biaya <i>faximile</i> Rp. 4.470.400	Rp. 4.650.461,2
2) Biaya Administrasi (12 kali pembelian x Rp. 1.775.620)	Rp. 21.307.440
Total	Rp. 25.957.901,2
Biaya Simpan	
1) Biaya Listrik (4 Lampu x 300 watt (0,3 kw) x 7 jam x Rp. 615 x 254 hari	RP. 1.312.164
2) Biaya Tenaga Kerja Pengawas (Rp. 3.600.000 x 2 Orang x 12 Bulan)	Rp. 86.400.000
3) Biaya Pemeliharaan Alat	Rp. 6.245.250
Total	Rp. 93.957.414

Sumber: PT.AKT Indonesia

Calculation of Order Cost and Holding Cost

$$\text{Biaya pemesanan tiap kali pesan (s)} = \frac{\text{Total Biaya Pesan}}{\text{Frekuensi Pemesanan}}$$

$$= \frac{25.957.901,2}{12}$$

$$= \text{Rp. 2,164,658.4}$$

$$\text{Biaya penyimpanan per satuan bahan baku (H)} = \frac{\text{Total Biaya Simpan}}{\text{Total Penggunaan Bahan Baku}}$$

$$= \frac{93.957.414}{210.354}$$

$$= \text{Rp. 446.67}$$

Tabel 4.4

Hasil Perhitungan Biaya Pesan dan Biaya Simpan

Biaya Pemesanan per frekuensi pesan	Biaya Penyimpanan per satuan (pcs)
Rp. 2.164.658,4	Rp. 446,67

The company carries out the purchase of plywood goods for one year with a frequency of 12 times in one year. So that it can cause the expenditure of order costs or reservations and storage costs. So it can be known that the expenditure of order costs or reservations is Rp. 2,164,658.4 for one order and storage costs of Rp. 446.7 for storage per unit of raw material.

Calculation of Total Inventory Cost Based on Company Policy

It was obtained data that the company makes orders once a month or 12 times a year. The company has an average raw material requirement of 17529.5 pcs each month.

According to (Heizer & Render, 2011) The calculation of total company costs can be calculated using the following formula:

$$TIC_{per} = (\bar{D} \times H) + (n \times S)$$

Information:

TIC_{per} = Total biaya persediaan perusahaan

\bar{D} = Rata – rata kebutuhan bahan per tahun

H = Biaya simpan, rupiah/unit

n = Banyak perusahaan melakukan pemesanan per tahun

S = Biaya pesan, rupiah/unit

Cost supply Plywood Year 2019

$$\begin{aligned} TIC_{per} &= (\bar{D} \times H) + (n \times S) \\ &= (17,529.5 \times 446.66) + (12 \times 2,164,658.4) \\ &= 7,829,726.47 + 25,975,900.8 \end{aligned}$$

TIC_{per} = Rp. 33,805,627 per year.

Calculation of Raw Material Order Quantity Using the *EOQ Method*

This order quantity is called the economic order *quantity* .

Economical purchasing of raw materials is based on:

- 1) Total Raw Material Usage per year (D) 210,354 pcs
- 2) Ordering fee for each order (S) Rp. 2,164,658.4
- 3) Storage cost/unit (H) Rp. 446.66

Based on the data above According to (Salesti, 2014) so can be formulated as follows :

$$\begin{aligned} EOQ &= \sqrt{\frac{2 \cdot D \cdot S}{H}} \\ &= \sqrt{\frac{2 \times 210.354 \times 2.164.658,4}{446,66}} \\ &= \sqrt{\frac{910.689.106.147,2}{446,66}} \\ &= 45,154 \text{ pcs s} \end{aligned}$$

Frequency of Ordering Raw Materials

According to (Robyanto & Dewi, 2013)it, it is formulated as follows:

$$\text{Purchase frequency} = \frac{RU}{EOQ}$$

$$= \frac{210.354}{45.154}$$

= 4 times purchase

plywood raw materials that have been calculated using the EOQ method are:

$$\begin{aligned} & \text{EOQ} \times \text{Purchase Frequency} \\ & = 45,154 \times 4 = 180,616 \text{ pcs} \end{aligned}$$

If an efficient and profitable *plywood purchase is carried out, the company only orders or purchases plywood* 4 times per year with a total inventory of 180,616 pcs. However, the company purchases plywood 12 times per year and only based on estimates, for one purchase with a total raw material inventory of 210,354 pcs, resulting in savings of 29,738 pcs.

to determine the most effective and efficient frequency of ordering merchandise, which can be done by dividing the optimal merchandise needs. EOQ is the amount of ordering materials that can achieve the most minimal inventory costs.

Safety Stock

Safety Stock According to (Robyanto & Dewi, 2013) To calculate the safety stock, the following data is used:

Safety Stock = Average delay of raw materials per day x daily raw material requirements

- 1) The average delay for each order is 2 days.
- 2) The number of working days during the period is 254 days.

$$\begin{aligned} \text{Plywood raw material requirements} &= \frac{210.354}{254} \\ &= 828.16 \text{ pcs/day} \end{aligned}$$

Thus the safety stock is as follows:

$$\begin{aligned} &= 828.16/\text{day} \times 2 \text{ days} \\ &= 1,656 \text{ pcs} \end{aligned}$$

The average minimum inventory owned by the company is not determined or does not exist, but by carrying out efficient inventory of goods, the safety stock that should be applied to the company is 1,656 pcs.

Reorder Point

Reorder point (ROP) is the amount of use of merchandise or auxiliary goods during *the lead time plus safety stock*. The length of the *lead time* at PT. AKT Indonesia is 2 days where the operating time in one year is 254 days, then $L = \frac{2}{254}$ so that:

$$\begin{aligned} & \text{Reorder point (ROP)} \\ \text{ROP} &= (D \times L) + \text{SS} \\ &= (210,354 \times \frac{2}{254}) + 1,656.3 \\ &= 1,656.3 + 1,656.3 \\ &= 3,313 \text{ pcs} \end{aligned}$$

The company places a reorder when the supply of plywood raw materials is almost exhausted.

1. Maximum Inventory

According to (Robyanto & Dewi, 2013) For To find out the maximum inventory size, you can use the formula :

$$\begin{aligned} \text{Maximum Inventory} &= \text{SS} + \text{EOQ} \\ &= 1,656.3 + 45,152 \end{aligned}$$

$$= 46,808 \text{ pcs}$$

Supply maximum applied company is No there is . While with do proper raw material analysis , then amount supply the maximum that should be implemented by the company as much as 46,808 pcs.

Total Inventory Cost (TIC)

According (Buffa, 1991) to the calculation of inventory costs for purchasing materials, the following formula is used:

$TIC = \text{Total Inventory Cost}$

- | | |
|--|-----------------|
| 1) Total penggunaan bahan baku | 45,152 pcs |
| 2) Biaya pemesanan setiap kali pesan (S) | Rp. 2,164,658.4 |
| 3) Biaya penyimpanan | Rp. 446.66 |

$$\begin{aligned} TIC &= \sqrt{2 \cdot D \cdot S \cdot H} \\ &= \sqrt{2 \times 45.152 \times 2.164.658,4 \times 446,66} \\ &= \sqrt{87.319.896.246.526} \\ &= \text{Rp. } 9,344,083 \text{ per year.} \end{aligned}$$

Based on the calculation above, it can be seen that with effective raw material inventory analysis, the total cost of raw material inventory that must be borne by the company for a year is Rp. 9,344,083.

Efficiency Cost

$$\begin{aligned} \text{Cost efficiency} &= \text{TIC before EOQ} - \text{TIC after EOQ} \\ &= 33,805,627 - 9,344,083 \\ &= \text{Rp. } 24,461,544 \text{ per year.} \end{aligned}$$

Based on the level of efficiency of raw material inventory costs in the company, it can be seen by comparing the amount of *plywood raw material inventory costs* incurred by the company of Rp. 33,805,627 with the amount of inventory costs after the inventory efficiency analysis was carried out of Rp. 9,344,083 . Then the level of efficiency obtained after conducting the analysis shows a decrease in inventory costs of Rp. 24,461,544.

Comparison Between Company Policy and EOQ Method

From the results of the calculations or calculations that have been carried out, it can be observed that *the Economic Order Quantity (EOQ)* method is compared to the company policy method. Below you can see the comparison table: :

Tabel 4.5
Perbandingan Biaya Total Persediaan Berdasarkan Kebijakan Perusahaan dan Metode EOQ

No.	Keterangan	Kebijakan Perusahaan	Metode <i>EOQ</i>
1	Kebutuhan bahan baku	210.354 pcs	180.616 pcs
2	Frekuensi Pembelian	12 kali pembelian	4 kali pembelian
3	Persediaan Pengaman (<i>Safety Stock</i>)	Tidak ada	1.656 pcs
4	Pemesanan Kembali (<i>Reorder Point</i>)	Barang hampir habis	3.313 pcs
5	Persediaan Maksimum (<i>Maximum Inventory</i>)	Tidak ada	46.808 pcs
6	Total Biaya Persediaan (<i>TIC</i>)	Rp.33.805.627	Rp.9.344.083

From the table above, it can be seen that the total inventory obtained using the *EOQ method* is 180,616 pcs with a purchase frequency of 4 times. This amount is less when compared to the total inventory carried out by the company, which is 210,354 pcs with a purchase frequency of 12 times.

Safety stock based on company policy is not determined or does not exist, if using the *EOQ method*, a number of 1,656 pcs can be used. *Reorder Point* which is applied by the company when the inventory is almost finished, but when it is known with the *EOQ method* the company must reorder when the inventory reaches the point of 3,313 pcs. *Maximum Inventory* If we look at the company policy which is not set or does not exist, using the *EOQ method* the maximum inventory that the company can maintain is 46,808 pcs.

The total inventory cost according to company policy is Rp. 33,805,627, but if the *EOQ method* is applied, the total inventory cost of plywood raw materials can be obtained as Rp. 9,344,083. So the total inventory cost that can be saved by the company is Rp. 24,461,544 per year.

4. Conclusion

Based on analysis and results calculations that have been obtained, then can taken conclusion to implementation method *Economic Order Quantity (EOQ)* at PT. AKT Indonesia is:

1. Can known total inventory acquisition found with *EOQ Method* amounting to 180,616 pcs with frequency purchase as many as 4 times in a year. Amount This more A little or more small compared to with the total inventory carried out by the company that is amounting to 210,354 pcs with frequency purchase as many as 12 times in a year.
2. *Safety stock* applied policy company No determined or No there is, if with calculation method *EOQ* can used a total of 1,656 pcs. *Reorder Point* if see policy company that is when Supplies are running out, however when apply method *EOQ* company must do *Re-order* or booking

return when supply reach point 3,313 pcs. *Maximum Inventory* according to policy company No set or No there is , if see calculation EOQ inventory method maximum that can be maintained company a total of 46,808 pcs.

3. Total cost supply with If see policy company amounting to Rp.33,805,627, but if apply EOQ method can obtain total costs supply material plywood raw materials amounting to Rp.9,344,083. So the total cost supplies that can cut / cut by the company amounting to Rp. 24,461,544 per year .
4. Implementation strategy method *EOQ* can help company save total inventory amounting to Rp. 24,461,544. This is prove TIC before *EOQ* $>$ TIC after *EOQ* so that can it is said efficient and able used / made into as control supply material standard Because with use method calculation *EOQ* can produce minimal cost . So that company can allocate excess budget supply For more needs profitable for company .

5.2 Suggestions

Based on analysis and conclusion research , then in the section This writer try For convey the expected suggestions will useful / beneficial for company in the future period come .

1. From the results study on obtained If calculation method *EOQ* more efficient For applied . Therefore That company it would be better do review return to policies implemented related companies with control supply material the standard that done during This .
2. With apply method *Economic Order Quantity (EOQ)* Can determine suitable stock with needs company but still prioritize supply safety (*safety stock*) so that Can press costs / losses incurred consequence No specifically company control inventory and manage it .
3. For guard and protect maybe lack of material standard from more estimates big from usage or estimates and for guard too late material standard ordered , company should set the amount of safety stock and reorder point in material management / control supply material standard .

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