

Inventory Control Process Using MRP (Material Requirement Planning) In Production Planning at PT. Dae Young Apex Ind

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Abstract

In production planning, the company wants to make efficiency, especially on inventory stock or stock availability which must be controlled so that storage costs are not too long and the control process in purchasing raw materials can be adjusted as needed. The Material Requirement Planning (MRP) method is a method for planning raw material supplies with the aim of calculating the costs to be used, and the results of calculations using the MRP method, Lot For Lot (LOL) is the safest method to use because it costs a small amount of Rp. 111,276,000 with an ordering schedule for 1 period before it is needed, from other methods, namely EOQ and POQ. And the Forecasting Method is a method used to calculate needs in the following month with the aim of ensuring that the raw materials to be ordered can be adjusted, the forecasting method used is the Weighted Moving Average (WMA) because the MAPE calculation results have a small percentage of 6.94%, with a small percentage of safe calculation data to carry out the forecasting process in raw material planning

Keywords: MRP, Forecasting, and inventory planning and control

INTRODUCTION

The storage of goods has an important role in a company where the condition of the stock or stored raw materials must be in accordance with the stock data, because the stock data will be used as the start of the production planning process so that it runs smoothly, so it does not cause problems in the future, such as late raw materials. came so they had to reschedule production to follow the delivery requests from consumers.

Forecasting techniques and inventory control have the goal of achieving a balance between the demand (demand) of raw materials used for the production process so that control is needed so that it can match the company's conditions

PT. Dae Young Apex Indonesia is a company engaged in the field of plastic injection where the raw materials or materials used are plastic pellets, raw materials obtained from several selected suppliers will have quality to maintain in producing or producing goods, in the production process of PT. Dae Young Apex Indonesia receives Purchase Orders (PO) from customers every month so that the calculation of raw material requirements is very influential in production planning.

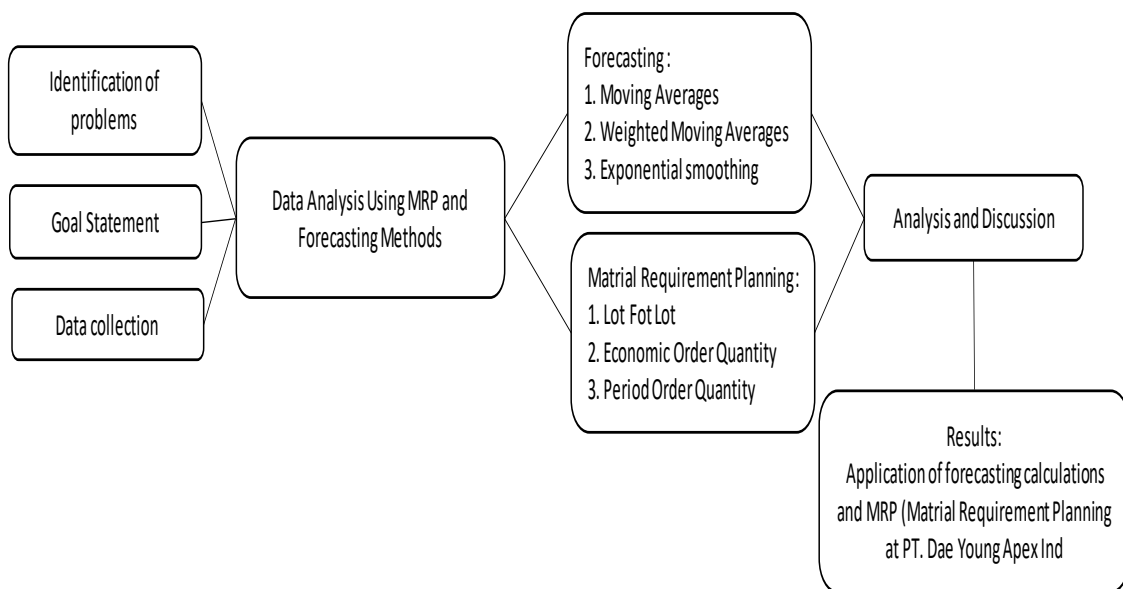
In the process of calculating material planning with the aim of Material Requirement Planning (MRP) in manufacturing companies, reducing excess inventory, reducing lead time for production and delivery to customers, definite delivery commitments to customers and increasing efficiency in production planning. So that in the calculation process for this part, the forecasting method and Material Requirement Planning (MRP) will be used. Data on demand and production from January 2022 to December 2022, from the results of these data the condition of the stock that is stored if taken on average is 15% or a shelf life of 2 days, and cases of stock differences found 3 times in 1 year. These conditions will be used as material for research by the author to find out stock data that is experiencing discrepancies, whether there is a forecasting

process in planning every subsequent month, and the Material Requirement Planning (MRP) process as inventory control in the production planning process and inventory stock control activities. carried out every month. Inventory of raw materials in planning the production process becomes an important part in the production process so that inventory data must be checked or carried out inventory activities or checking every month, and there are incoming and outgoing report data so that inventory can be known, with the aim of avoiding stock discrepancies that result in running the production process is disrupted, then the planning process for the delivery of goods is late, which can lead to unfavorable assessments from customers or customers. The company organizes material planning and control with the main objective of reducing or minimizing costs and to maximize profits within a certain time. In the planning and control of raw materials the problem is planning the right material inventory so that production activities are not disrupted, so that planning for production needs is fully controlled by the Planning Production Inventory Control (PPIC) department, and submitting planning needs data in the production process to the purchasing department or purchase of raw materials.

RESEARCH METHOD

The research design used as a control process with forecasting and Material Requirement Planning (MRP) is as follows:

Figure 1. Concept Framework



Source: Researcher (2022)

From the section above which is used as a conceptual framework or research design, it can be seen how the analysis uses the forecasting method or forecasting and Material Requirement Planning, as is known in forecasting using three methods, namely: Moving Average, Weighted Moving Average and Exponential smoothing. For the MRP method, namely: Lot for lot, Economic Order Quantity, and Period Order Quantity.

To collect data, observation and production data are needed as data needed in research conducted at PT. Dae Young Apex Ind with data from January 2022 to December 2022.

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Table 1. Variable Operationalization

Variabel/ Konsep	Indikator	Skala
MRP	Master Production Schedule (MPS)	Rasio
	Inventory Status File	
	Bill of Materials (BOM)	
	Lot for Lot (LFL)	
Forecasting	Economic Order Quantity	Rasio
	Period Order Quantity	
	Moving Average (MA)	
	Weighted Moving Average (WMA)	
	Exponential smoothing	
	Mean Square Error (MSE)	
	Mean Absolute Deviation (MAD)	
	Mean Absolute Percentage Error (MAPE)	

Source: Variable Operationalization in (2022)

RESULTS AND DISCUSSIONS

The following is production data for January 2022 to December 2022, as follows :

Table 2. Production Data 2022

Item Name : Part bottom Door		
Period	Month	Act Total Production
1	Januari 2022	26,233
2	Februari 2022	21,330
3	Maret 2022	22,100
4	April 2022	21,489
5	Mei 2022	19,887
6	Juni 2022	24,335
7	Juli 2022	23,434
8	Agustus 2022	21,556
9	September 2022	22,113
10	Oktober 2022	25,233
11	November 2022	23,889
12	<u>Desember 2022</u>	24,435
	Total	276,034

Source : PT. Dae Young Apex Ind (2022)

From the production data above, the highest production was in January 2022, namely with a total of 26,233 Pcs and for the lowest production data it was in May 2022, namely with a total of 19,887, this was due to long holidays, such as Eid al-Fitr holidays . Regarding production

data, the author will process it as a calculation plan using forecasting and material requirement planning (MRP) methods.

Forecasting

The Forecasting or Forecasting method is used to determine or make a plan in fulfilling material in the future by estimating the amount of product sales and use. So that products can be produced accordingly, from this method it can be given to raw material suppliers so they can prepare the needs for remaining stock or safe stock stored to avoid stock shortages, in this method will use moving averages, wight moving averages, and exponential smoothing.

Moving Average

This method reflects the actual demand from several periods that have passed to become a forecast value in the future. The formulation in calculating the forecast value of this method is as follows: $F_t = (D_{t-1} + D_{t-2} + D_{t-3} + \dots + D_{t-n}) / n$ as follows :

Table 3. Production Data Forecasting 2022
Metode Moving Averde

Period	Month	Request	Forecasting
1	Januari 2022	25.635	
2	Februari 2022	20.425	
3	Maret 2022	22.330	
4	April 2022	21.225	22.797
5	Mei 2022	19.445	21.327
6	Juni 2022	24.665	21.000
7	Juli 2022	23.442	21.778
8	Agustus 2022	21.334	22.517
9	September 2022	22.554	23.147
10	Oktober 2022	23.889	22.443
11	November 2022	25.666	22.592
12	Desember 2022	24.553	24.036
Total Apr 2022 s/d Des 2022		206.773	201.638
Total Jan 2022 s/d Des 2022		275.163	

Source : Researcher (2022)

From the results of calculations using the Moving Average method, the total requests from April 2022 to December 2022 total 206,773 with the highest demand in November 2022, namely 25,666. and for the results of the total forecast from April 2022 to December 2022 a total of 201,638 with the highest forecast in December 2022, which is 24,036, then from the calculation results using the Moving Average method, the test results will be carried out.

Test Results for the wight moving average (MA) method To find out the result values of the Mean Absolute Deviation (MAD), Mean Square Error (MSE), and Mean Absolute Percent Error (MAPE). After testing, the final value is found as follows :

Table 3.

Periode	B Actual	C Forecast	D Error	Absolute Value of Error $ A_t - F_t $	Square of Error $(A_t - F_t)^2$	Absolute Values of Errors Divided by Actual Values. $ A_t - F_t /A_t$
t	A_t	F_t	$A_t - F_t$	$ A_t - F_t $	$(A_t - F_t)^2$	$ A_t - F_t /A_t$
Januari 2022			0	0	0	
Februari 2022			0	0	0	
Maret 2022			0	0	0	
April 2022	21225	22797	-1572	1572	2470136	0.07
Mei 2022	19445	21327	-1882	1882	3540669	0.10
Juni 2022	24665	21000	3665	3665	13432225	0.15
Juli 2022	23442	21778	1664	1664	2767787	0.07
Agustus 2022	21334	22517	-1183	1183	1400278	0.06
September 2022	22554	23147	-593	593	351649	0.03
Oktober 2022	23889	22443	1446	1446	2089952	0.06
November 2022	25666	22592	3074	3074	9447427	0.12
Desember 2022	24553	24036	517	517	266944	0.02
Totals			5135	15594	35767067	0.673

n	9
MAD	1,733
MSE	3,974,119
MAPE (%)	7.48

Source: Researcher (2022)

Using methods from 2017 -2021 Dawn E Wright, Ph.D. then found the test results on the Moving Average method, the results of testing the value of the Mean Absolute Deviation (MAD) 1733, Mean Square Error (MSE) 3,974,119, and Mean Absolute Percent Error (MAPE) 7.48%.

Forecasting with the Wight Moving Average (WMA)

Forecasting method by giving more weight to the most recent data, and reducing the weighting to past data. As follows:

$$WMA = \frac{\sum (\text{weight on period}) (\text{demand for the period})}{\sum \text{bobot}}$$

Before determining forecasting on the Wight Moving Average (WMA) method, the weight value is determined first to find out the total weight that will be used as the calculation.

Table 4. WMA Weight Value

Period	Wighted Applied
Last month	3
2 Months Ago	2
3 Months Ago	1
Total Bobot	6

Source: Researcher (2022)

After the weight value is found, then the process of calculating the forecasting method of the Wight Moving Average (WMA) is continued with the following results:

Table 5. Method with Moving Average

Period	Month	Request	Forecasting
1	Januari 2022	25,635	
2	Februari 2022	20,425	
3	Maret 2022	22,330	
4	April 2022	21,225	22,246
5	Mei 2022	19,445	21,460
6	Juni 2022	24,665	20,519
7	Juli 2022	23,442	22,352
8	Agustus 2022	21,334	23,184
9	September 2022	22,554	22,592
10	Oktober 2022	23,889	22,295
11	November 2022	25,666	23,018
12	Desember 2022	24,553	24,555
Total Apr 2022 s/d Des 2022		206,773	202,221
Total Jan 2022 s/d Des 2022		275,163	

Source: Researcher (2022)

From the results of calculating the total demand from April 2022 to December 2022 a total of 206,773 with the highest demand in November 2022, namely 25,666. and for the results of the total forecast from April 2022 to December 2022 a total of 202,221 with the highest forecast in December 2022, which is 24,555. then from the calculation results with the Wight Moving Average (WMA) method the test results will be carried out.

Test Results of the Wight Moving Average (WMA) Method To find out the result values of the Mean Absolute Deviation (MAD), Mean Square Error (MSE), and Mean Absolute Percent Error (MAPE). After testing, the final values are found as follows:

Table 6.

Periode	B Actual	C Forecast	D Error	Absolute Value of Error	Square of Error	Absolute Values of Errors Divided by Actual Values.
t	A _t	F _t	A _t -F _t	A _t -F _t	(A _t -F _t) ²	A _t -F _t /A _t
Januari 2022			0	0	0	
Februari 2022			0	0	0	
Maret 2022			0	0	0	
April 2022	21225	22246	-1021	1021	1042101	0.05
Mei 2022	19445	21460	-2015	2015	4060225	0.10
Juni 2022	24665	20519	4146	4146	17187934	0.17
Juli 2022	23442	22352	1090	1090	1188827	0.05
Agustus 2022	21334	23184	-1850	1850	3420650	0.09
September 2022	22554	22592	-38	38	1431	0.00
Oktober 2022	23889	22295	1594	1594	2539773	0.07
November 2022	25666	23018	2648	2648	7011021	0.10
Desember 2022	24553	24555	-2	2	4	0.00
Totals			4553	14403	36451967	0.625

n	9
MAD	1,600
MSE	4,050,219
MAPE (%)	6.94

Source: Researcher (2022)

Found the test results on the Wight Moving Average method, the results of testing the values of the Mean Absolute Deviation (MAD) 1600, Mean Square Error (MSE) 4,050,219, and Mean Absolute Percent Error (MAPE) 6.94%.

Forecasting with the Exponential Smoothing Method

Exponential smoothing is a moving average forecasting method with weighted data points by the exponential function. Systematically, Exponential Smoothing is formulated as follows:

$$F_t = F_{(t-1)} + \alpha (A_{(t-1)} - F_{(t-1)})$$

Table 7. Exponential Smoothing Method Alpha Value 0.6

Exponential Smoothing						
Demand/sales data table				a	1-a	
				0.6	0.4	
Period	Month	Sales (Y)	y1	MAD	MSE	MAPE
1	Jan-22	25,635				
2	Feb-22	20,425	25,635	5,210	27,144,100	0.25508
3	Mar-22	22,330	22,330	0	0	0.00000
4	Apr-22	21,225	22,330	1,105	1,221,025	0.05206
5	May-22	19,445	21,629	2,184	4,770,011	0.11232
6	Jun-22	24,665	20,244	4,421	19,548,979	0.17926
7	Jul-22	23,442	23,048	394	154,970	0.01679
8	Aug-22	21,334	23,298	1,964	3,857,532	0.09206
9	Sep-22	22,554	22,052	502	251,859	0.02225
10	Oct-22	23,889	22,371	1,518	2,305,842	0.06356
11	Nov-22	25,666	23,334	2,332	5,439,291	0.09087
12	Dec-22	24,553	24,813	260	67,723	0.01060
				1,808	5,887,394	0.081
				8.14%		

Source: Researcher (2022)

The results of the Exponential Smoothing calculation are Alpha 0.6, testing the Mean Absolute Deviation (MAD) value of 1,808, Mean Square Error (MSE) 5,887,394, and Mean Absolute Percent Error (MAPE) 8.14%.

System Matrial Requirement Planning (MRP)

In general, the system has input and output processes, the input from the MRP system is the Master Production Schedule (MPS), Inventory Status File and Bill of Materials (BOM) or Material List, while the output is an Order Release Requirement (Material requirements to be ordered) Master Production Schedule.

Table 8.

Request Data Actual Table				Master Planning Schedule					
Item Name : Part bottom Door				Production Plan				Keep stock	
Period	Month	Request	Stock	Balance Produksi	capa/ day	Act Total Produksi	Prod.d ay	Ending stock	%
1	Januari 2022	25,635	1855	-23,780	1800	26233	14.57	2,453	10%
2	Februari 2022	20,425	2453	-17,972	1800	21330	11.85	3,358	16%
3	Maret 2022	22,330	3358	-18,972	1800	22100	12.28	3,128	14%
4	April 2022	21,225	3128	-18,097	1800	21489	11.94	3,392	16%
5	Mei 2022	19,445	3392	-16,053	1800	19887	11.05	3,834	20%
6	Juni 2022	24,665	3834	-20,831	1800	24335	13.52	3,504	14%
7	Juli 2022	23,442	3504	-19,938	1800	23434	13.02	3,496	15%
8	Agustus 2022	21,334	3496	-17,838	1800	21556	11.98	3,718	17%
9	September 2022	22,554	3718	-18,836	1800	22113	12.29	3,277	15%
10	Oktober 2022	23,889	3277	-20,612	1800	25233	14.02	4,621	19%
11	November 2022	25,666	4621	-21,045	1800	23889	13.27	2,844	11%
12	Desember 2022	24,553	2844	-21,709	1800	24435	13.58	2,726	11%
Total		275,163							

Source: Researcher (2022)

Table 10. Inventory Status

INVENTORY STATUS			
No	Month	Item Name	Stock Teori
1	Januari 2022	Part bottom Door	1,855
2	Februari 2022	Part bottom Door	2,453
3	Maret 2022	Part bottom Door	3,358
4	April 2022	Part bottom Door	3,128
5	Mei 2022	Part bottom Door	3,392
6	Juni 2022	Part bottom Door	3,834
7	Juli 2022	Part bottom Door	3,504
8	Agustus 2022	Part bottom Door	3,496
9	September 2022	Part bottom Door	3,718
10	Oktober 2022	Part bottom Door	3,277
11	November 2022	Part bottom Door	4,621
12	Desember 2022	Part bottom Door	2,844
Total			39,480

Source: Researcher (2022)

Table 11. Bill of Material

Bill Of Matrial			
No	Komponen	Jumlah	Sat
BOTTOM DOOR CAP		1,00	Pcs
1	Abs	224,12	Gram
2	Masterbatch	4,48	Gram
3	Polybag	1,00	Pcs

Source: Researcher (2022)

Table 12. Raw Material Calculation

Table Data Actual Permintaan			Bahan Baku A		Bahan Baku B		Bahan Baku C	
Nama Barang : Part bottom Door			Berat/pcs	ABS	Mix	Masterbatch	Pemakaian	Polybag
Periode	Bulan	Permintaan						
1	Jan-22	25,635	224.12	5,745	2%	115	1	25,635
2	Feb-22	20,425	224.12	4,578	2%	92	1	20,425
3	Mar-22	22,330	224.12	5,005	2%	100	1	22,330
4	Apr-22	21,225	224.12	4,757	2%	95	1	21,225
5	May-22	19,445	224.12	4,358	2%	87	1	19,445
6	Jun-22	24,665	224.12	5,528	2%	111	1	24,665
7	Jul-22	23,442	224.12	5,254	2%	105	1	23,442
8	Aug-22	21,334	224.12	4,781	2%	96	1	21,334
9	Sep-22	22,554	224.12	5,055	2%	101	1	22,554
10	Oct-22	23,889	224.12	5,354	2%	107	1	23,889
11	Nov-22	25,666	224.12	5,752	2%	115	1	25,666
12	Dec-22	24,553	224.12	5,503	2%	110	1	24,553
	Jan-23	-						
Total		275,163	Total (Kg)	61,670	Total (Kg)	1,234	Total (pcs)	275,163

Source: Researcher (2022)

Table 13. Storage Prices and Raw Material Prices

Biaya Penyimpanan			Harga Bahan Baku		
No	Keterangan	Biaya	No	Nama Bahan	Biaya
1	Listrik	Rp 350.000	1	ABS	Rp 21.000
2	Pemeliharaan Gudang	Rp 250.000	2	MASTERBATCH	Rp 28.000
3	Keamanan	Rp 450.000	3	POLYBAG	Rp 8.000
Total		Rp 1.050.000			

Source: Researcher (2022)

From the data that has been collected above, the calculation results for the Lot for Lot (LFL) method, the Economic Order Quantity and the Period Order Quantity method are as follows:

Lot For Lot Approach using the concept on the basis of orders with consideration of minimizing the cost of storage, the amount ordered is the same as the amount needed with the aim of minimizing costs because lots will be adjusted to the needs.

Table 14.

Raw Material Calculation Table

<i>MRP calculation using the Lot-For-Lot method</i>													
RAW MATERIAL A (ABS)													
Period	0	1	2	3	4	5	6	7	8	9	10	11	12
Gross Requirements		5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752	5,503
Scheduled Reception													
Projected On Hand	5,745	0	0	0	0	0	0	0	0	0	0	0	0
Net Requirement			5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752
Planned Receipts			5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752
Planned Order		5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752	

Source: Data for 2022

Source: Researcher (2022)

Table 15.

No	Material Name	Qty Order	UNIT PRICE	Ordering Cost	Average Inventory	Order Fee	Total Cost Save	Total Cost (Rp)
1	ABS	12	Rp 21,000	Rp 250,000	5105	Rp 3,000,000	Rp 108,276,000	Rp111,276,000

Source: Researcher (2022)

Economic Order Quantity In Material Requirement Planning (MRP) this study only uses the MRP lot sizing technique with EOQ for calculating the cost of ordering raw materials. In the calculation of the Economic Order Quantity (EOQ) lot calculation is based on the total quantity that has been calculated by the formula to find out the number of orders in the number of orders, as follows: $EOQ^* = ((2 \times D \times S) / H)$.

Table 16.

No	Material Name	Qty Order	UNIT PRICE	Total Cost (Rp)	Total Annual Needs	Ordering Cost	Total storage fee	EOQ	Interval
1	ABS	12	Rp 21,000	Rp 110,205,000	61,661	Rp 250,000	Rp 3,024,000	10195	6

Source: Researcher (2022)

From the results of the Economic Order Quantity (EOQ) calculation, it produces interval values or order plans such as ABS raw materials which are ordered six times in one year, as follows:

Table 17.

Raw Material Calculation Table													
MRP calculation using the Economic Order Quantity method													
RAW MATERIAL A (ABS)													
Period	0	1	2	3	4	5	6	7	8	9	10	11	12
Gross Requirements		5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752	5,503
Scheduled Reception													
Projected On Hand	5,745	0	0	5,617	612	6,050	1,692	6,359	1,105	6,519	1,464	6,314	562
Net Requirement			-4,578	0	-4,145	0	-3,836	0	-3,676	0	-3,881	0	-4,941
Planned Receipts			10,195		10,195		10,195		10,195		10,195		10,195
Planned Order		10,195		10,195		10,195		10,195		10,195		10,195	

Source: Data for 2022

Source: Researcher (2022)

Table 18.

No	Material Name	Qty Order	Available items	Ordering Cost	Holding Costs	Order Fee	Save Cost	Total Cost (Rp)
1	ABS	6	5,254	Rp 250,000	Rp 3,024,000	Rp 1,500,000	Rp 113,358,000	Rp 114,858,000

Source: Researcher (2022)

Period order quantity in determining the material requirement planning method period order quantity is a lot size technique that places orders or the required quantity during a predetermined period, for example 3 weeks. Poq is an order quantity that covers a certain request for a certain interval.

$$P = EOQ / R$$

POQ = Economic order interval in one period

EOQ = Optimal inventory quantity

R = Average usage per period

Table 19.

No	Material Name	Total Annual Needs	Ordering Cost	Holding Costs	EOQ	Average monthly requirement	POQ	
1	ABS	61,661	Rp 250,000	Rp 3,024,000	10195	5138	2	Interval or purchase 2 months

Source: Researcher (2022)

After knowing the value of the Interval results on the POQ value, ABS raw materials are purchased in 2 months, Masterbatch raw materials are purchased in 2 months, and polybag raw materials are purchased in the next 3 months, so the process that will be carried out will be shown in the Matrial Requirement Planning (MRP) table with the period order quantity (POQ) method table as follows:

Table 20.

Raw Material Calculation Table

MRP calculation using the Period Order Quantity method													
RAW MATERIAL A (ABS)													
Period	0	1	2	3	4	5	6	7	8	9	10	11	12
Gross Requirements		5,745	4,578	5,005	4,757	4,358	5,528	5,254	4,781	5,055	5,345	5,752	5,503
Scheduled Reception													
Projected On Hand	5,745	0	0	5,005	0	4,358	0	5,254	0	5,055	0	5,752	0
Net Requirement			-4,578	0	-4,757	0	-5,528	0	-4,781	0	-5,345	0	-5,503
Planned Receipts			9,583		9,115		10,782		9,836		11,097		5,503
Planned Order		9,583		9,115		10,782		9,836		11,097		5,503	

Source: Data for 2022

Source: Researcher (2022)

Table 21.

No	Material Name	Qty Order	Available items	Ordering Cost	Biaya Holding Cost	Order Fee	Save Cost	Total Cost (Rp)
1	ABS	5	9,319	Rp 250,000	Rp 3,024,000	Rp 1,250,000	Rp 198,730,000	Rp 199,980,000

Source: Researcher (2022)

CONCLUSION

Based on the results of data processing with the forecast method used in the use of raw materials at PT. Dae Young Apex Indonesia which has been discussed in chapter IV, it can be concluded that with the Moving Average method the MAD value is 1,733 and MSE is 3,974,119 and MAPE is 7.48%. For the Weighted Moving Average method, the MAD value is 1,600 and the MSE is 4,050,219 and the MAPE is 6.94%. As for the Exponential Smoothing method, the MAD value is 1,808 and MSE is 5,887,394 and MAPE is 8.14%. The Weighted Moving Average method is the most appropriate forecasting method due to the low value, compared to the Moving Average and Exponential Smoothing methods, with the Weighted Moving Average method you can use for forecast or forecasting is safe to use. Based on the results of data processing using the Material Requirement Planning (MRP) method, related to the supply of raw materials at PT. Dae Young Apex Ind which has been discussed in chapter IV, it can be concluded that the Lot for Lot (LOL) method is a better way of calculating because the total costs incurred are not too large, compared to the Economic Order Quantity (EOQ) method, and Period Order Quantity (POQ). Example of raw material A (ABS) Total Cost Rp. 111,276,000 (LFL), Rp. 115,358,000 (EOQ) and Rp. 119,980,000 (POQ).

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