

PROJECT REPORT

ON

“A STUDY ON INVENTORY MANAGEMENT”

At Mangal Agency

BY

VARSHA PODDAR

2016BBA022



Under Supervision of

Dr. SHEETAL MUNDRA

(Submitted in the partial fulfilment of the requirement for the BBA degree)

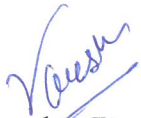
INSTITUTE OF MANAGEMENT

JK LAKSHMIPAT UNIVERSITY, JAIPUR

2016-2019

DECLARATION

I hereby declare that the project work entitled “A study on Inventory management” submitted to JK Lakshamipat University, Jaipur is recorded of an original work done by me. This project work is submitted in partial fulfilment of the requirements for award of the degree of The Bachelor of Business Administration. It is not produced or published anywhere else for award or any degree.



Varsha Poddar

B.B.A

MANGAL AGENCIES

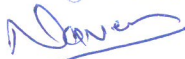
264, VISHWAKARMA INDUSTRIAL AREA,
SIRSI ROAD, JAIPUR

To Whomsoever it may concern

This is to certify that **Ms. Varsha poddar** student of BBA 2nd year, JK Lakshamipat University, Jaipur has undertaken summer training in our organization from 15th May to 30th June on the project titled "**A study on Inventory Management**" under my guidance. To the best of my knowledge, the study undertaken by her is original and is not replicated in any research paper, report or literature.

I wish her all success in life.

For Mangal Agencies


Proprietor

Naveen Agarwal
proprietor
project guide

Contact : +91 98281 10567
Mail Id : Mangalagencies@gmail.com

CERTIFICATE

This is to certify that Ms. Varsha Poddar, student of B.B.A. V semester, Institute of Management, JK Lakshmipat University has undertaken her summer training at Mangal Agency on the topic titled as “A study on Inventory Management” under my guidance. Her summer training report is record of bona fide study. It is not published anywhere or replicated for award or any degree.



Dr. Sheetal Mundra

(Faculty Guide)

ACKNOWLEDGEMENT

The summer project at Mangal agency has been very memorable and learning experience for me. It opened new venues of grabbing knowledge, which will help me in the years to come

.The completion of this project could not have been possible without the help and guidance of Mr. Naveen Agerwal industry guide and Dr. Sheetal Mundra faculty guide. They have always supported me to put my best efforts and were always there by me.

Content

1) Executive summery.....	07
2) Introduction to Industry and company overview.....	08
3) Objectives of the study.....	22
4) Research Methodology.....	23
5) Analysis.....	24
6) Findings.....	34
7) Observation.....	35
8) Suggestions.....	36
9) References.....	37

Executive summery

“Adequate inventories facilitates production activities and help to customers satisfaction by providing good services”

This project is a small attempt to study the Inventory management at the Mangal agency during my internship period from 15th May- 30th June 2018, Jaipur.

The project is the review of Inventory management practices in the company and to analysis the efficiency of inventory management using different techniques like ABC analysis, EOQ analysis and Inventory turnover ratio.

During my internship I learnt about different phases of production operation, division of labours, inventory procurement and tracking orders.

This internship at Mangal agency gave me a great exposure to business world.

INTRODUCTION TO INDUSTRY
AND
COMPANY OVERVIEW

Introduction to Industry

The Indian plastic industry has come a long way. In the few decades, the industry has grown to its prime status to be as one of the leading sector in India. Plastic as a material is gaining importance in different sectors and the per capita consumption is increasing continuously. The regular advancement and development in polymer technology, processing machineries, expertise, and cost effective manufacturing is continuously replacing the typical materials in different segment of industry.

In terms of value, the Indian plastic products industry has grown at a CAGR of 11%. The export of plastic product contributes about 1% of the country's exports. This sector is largely influenced by small scale companies yielding more than 50% turnover of the industry and provides employment of about 4 million in the nation, with respect to a research an estimated amount of Rs.100 billion are invested as fixed assets of plastic processing industry.

History

The Indian plastic industry made it debuted in the year 1957 with the start of production of polystyrene. Ever since it's beginning it had a very promising growth. In last few decades the industry has gained its importance with production of better and improved quality of plastic product.

The chronology of Indian polymer manufacturing is as follows:

- 1957 - Polystyrene
- 1959 - LDPE
- 1961 – PVC
- 1968 - HDPE
- 1978 – Polypropylene

Currently, the Indian plastic industry is highly fragmented with an estimate of around 25,000 firms and over 400,000 employees. The top 100 players of Indian plastic industry account for just 20% of the industry turnover. Barring 10 to 15% of the firms that can be categorized as medium scale enterprises, most of the units operate on a small – scale basis.

The immense potential of Indian plastic industry has motivated Indian

manufacturers to acquire technical expertise, achieve superior quality standards and build capacities in different facets of the booming plastic industry. Substantial developments in the plastic machinery sector coupled with matching developments in the petrochemical sector, both of which support the plastic processing industry, have facilitated the plastic processors to develop capacities to cater both the domestic as well as overseas exports.

Market capitalization

Typically, in an emerging market, demand growth for plastics is 2 to 2.5 times the GDP growth. Sadly this is not the case in India where the growth at times has been lower than the GDP growth. The per capita consumption of plastics in India at 5kg is much lower than that of China which averages 25kg. But India could see very soon improvement in the production of Plastic. India today represents range of highly promising opportunities for growth of plastics producers worldwide. The fragmented plastics industry in India is beginning to consolidate, governmental regulations and trade barriers are coming down due to India's recent admission to the WTO, and some large North American plastics manufacturers have already begun doing business here.

Size of the industry

Today in India there are about 22000 plastic processing units and 150 plastic processing machinery manufactures. The machinery units supply over 2500 machineries per annum. In 1982, the All India Plastic Industries Association was incorporated to solve various issue related to import duty of polymers.

Products

The major plastic products that India export are -

- Raw Materials - PVC, polypropylene, polyethylene, polystyrene, ABS, polyester chips, urea / phenol formaldehyde, master batches, additives, etc
- Packaging - PP / HDPE woven sacks / bags / fabrics, poly-lined jute goods, box strapping, BOPP tapes, a range of plastic sheeting / films (of PVC, PP,

HDPE, nylon, FRP, PTFE, acrylic, etc.), pouches, crates, bottles, containers, barrels, cans, carboys, shopping / carrier / garbage bags.

- Films - Polyester film, BOPP film, mesh, metalized / multilayer films and photo films.
- Consumer Goods - Toothbrushes, cleaning brushes, hair brushes, nail / cosmetic brushes, combs, molded furniture (chairs, tables, etc.) house ware, kitchenware, insulated molded house ware, microwave re-heatable containers, mats and mattresses, water bottles, gifts and novelties, a range of stationery items like files, folders, mathematical instruments, etc.
- Writing Instruments - Pens, ball pens, markers, sign pens, refills, etc.
- Travel ware - Molded luggage, soft luggage, a range of bags like school bags / ladies handbags, wallets, etc.
- Leather Cloth / Artificial Leather Floor Coverings - Vinyl floor coverings and linoleums.
- Foam Boards Drip Irrigation Systems / Components Pipes & Pipe Fittings - Made of PVC, HDPE, PP, FRP, and nylon.
- Water Storage Tanks Toys and Games Engineering Plastics - Auto components, parts for various machinery / equipment in telecommunications, railways, electronics, etc.
- Electrical Accessories FRP / GRP Products - Safety helmets / equipment, pipes, storage tanks, etc.
- Sanitary Fittings - Cisterns, toilet seats, bathroom fittings, etc.
- Construction - PVC profiles, doors, windows, etc.
- Tarpaulins Laminates Fishnets / Fishing Lines Cordage / Ropes / Twins Eyewear - Lenses, spectacle frames, goggles, etc.

- Laboratory Ware Surgical / Medical - Disposable syringes, blood / urine bags, I.V. sets, etc.

Top leading Companies

- Finolex Industries Ltd. It can produce 90,000 metric tons of pipes each year.
- Plastiblends India Limited is renowned as India's pioneer Masterbatches manufacturer.
- The most prominent plastic companies in India is the AGA Group International, established in 2004 in Ambala City, Haryana
- Corporate Resource Group is one of the leading suppliers, exporters and manufacturers of plastic instruments and pipettes
- ACRY Plus company exports, manufactures and supplies acrylic plastics sheets, polycarbonate sheets, polycarbonate multi-wall sheets and PVC foam sheets
- Kay Kay Global Suppliers was founded in 1993 at Ambala City, Haryana

Latest development

- Export of plastic products from India increased by 17.1 per cent to US\$ 8.85 billion in 2017-2018 as compared to US\$ 7.56 billion in 2016-17.
- Exports of plastic raw materials stood at US\$ 3.24 billion in 2017-18.
- During 2017-18, major importers of Indian plastic products were US (US\$ 1.11 billion), China (US\$ 728.31 million), UAE (US\$ 440.81 million), Italy (US\$ 403.94 million), Germany (US\$ 367.02 million), Turkey (US\$ 334.18 million), UK (US\$ 318.25 million), Bangladesh (US\$ 257.14 million) and Nepal (US\$ 205.82 million).
- India is ready to have 18 plastic parks and Government will be investing Rs 40 crore (US\$ 6.2 million) to increase the domestic production of plastics. This will achieve environmentally sustainable growth and increase employment.

Company profile

Introduction

Mangal agency was formed in the year 2009 by a young and dynamic business man Mr. Naveen Agerwal. The company's operations include manufacturing of HDPE pipes and fittings and selling all across the country, with an annual production of 200mt.

According to Mr. Naveen agerwal the manufacturing business stands on two important pillars, Customer satisfaction and Quality management. In the same way Magal agency tries to meet customer requirement without compromising on quality of the products alongside keeping a pace with progress and development. It also maintains a good standard of waste management, thus being certified as "pollution free" by Rajasthan government.

Objectives:

- To provide basic requirements of HDPE pipes and fittings.
- To give quality products to the customer
- To generate adequate returns on investment.

Missions:

To achieve growth step by step and develop meaning full strategies to face upcoming challenges in the market.

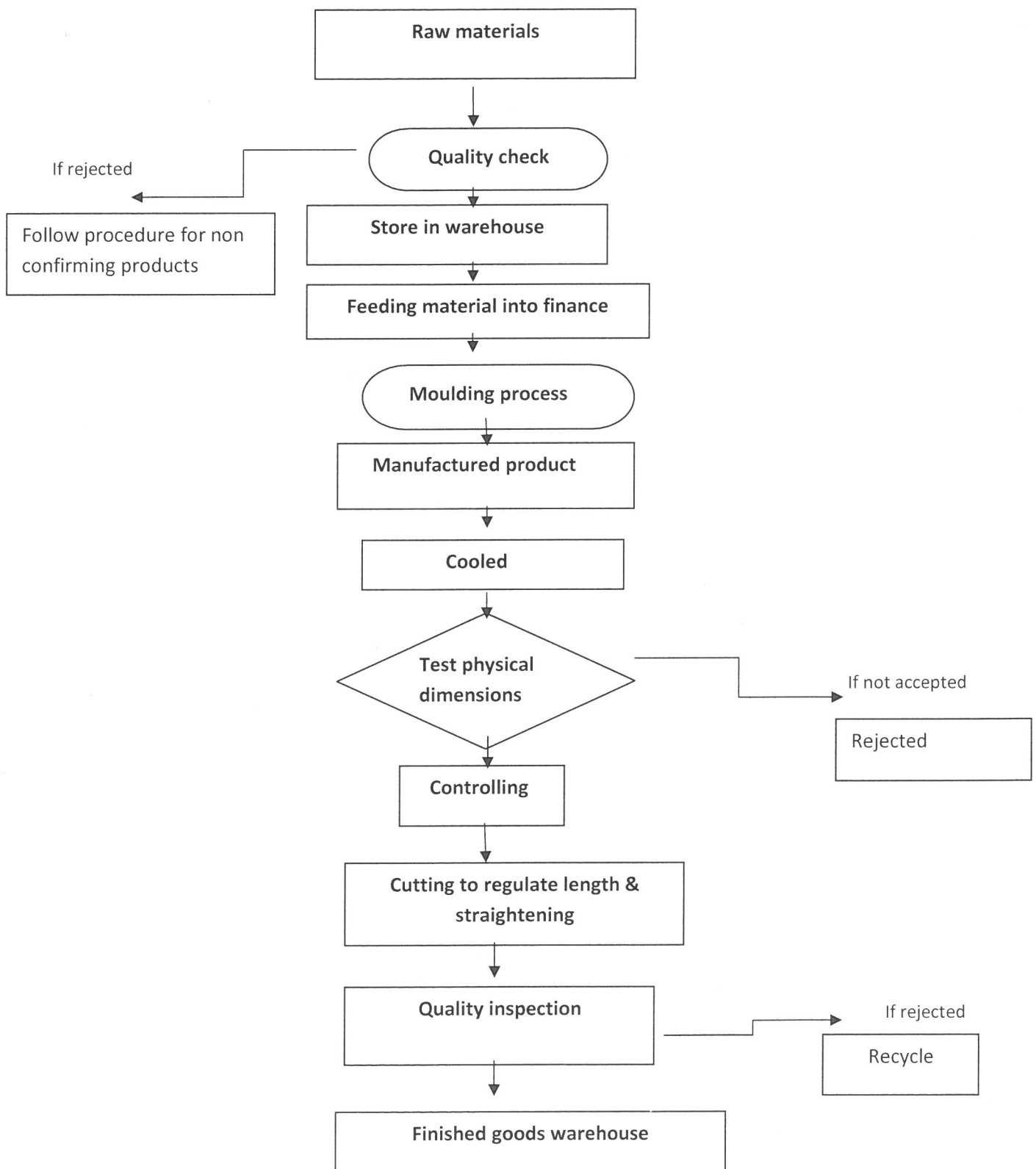
Characteristics of the company

- Performance
- Serviceability
- Reliability
- Durability

Product range:

- 20-1200mm Pn 10 Pn 16
- 20-110mm HDPE compression fittings
- Elbow 45°
- Elbow 90°
- Y piece
- Fabricated tree
- End cap
- Agriculture sprinklers

Manufacturing process



Raw material:

The first step in manufacturing process is to receive raw materials from the suppliers, as soon as the raw material are received the quality of the goods are checked by the supervisor, if the quality matches then it is send to raw material warehouse, but if not then it is kept on hold and the procedure for non confirming goods are started.

Stored in warehouse:

After the quality check once the goods stored in warehouse proper records are maintained. These raw materials are used on the bases of FIFO (fist in first out) method.

Production:

In production process fist the raw material is putted into furnace to melt the plastic granulates and then colours and chemicals are added once the solution is in appropriate proportion then the moulding process starts which converts the raw material into products.

Then the newly manufactured product is kept in water to cool down its temperature.

Test physical dimensions:

When the product has cooled down then its physical test is done, to check whether the product manufactured meets the company's standards or not. If the product is totally absolute then it is rejected and sends for recycle or if it can be corrected then controlling is done.

Controlling

In controlling the products which can be corrected through cutting and shaping are corrected. After which they are again gone through a quality check. If they don't pass this quality check then are considered absolute and are send for recycling.

Finished goods

All the goods that passes through the quality checks and are assembled with their fittings are considered to be finished goods. These goods are packed and stored in warehouse, then delivered to the customers on bases of FIFO method.

What is Inventory?

Inventory in its literal meaning is “a collection of resources” used in business. These are the goods and materials that can be directly store in the warehouse or can use as Inputs in the production process. These are consider as assets in the books of accountancy.

Types of Inventory

The type of Inventory required in any organisation highly depends on the nature of the industry. The Inventories can be classified into four broad categories those are.

- Raw Materials Inventory
These are basic materials or Inputs that are converted into finished products through a manufacturing process.
- Work in progress / process Inventory
These are semi-finished goods. They show that the production process is still going on, the longer and complex the production process is the more will be the work in progress inventory.
- Finished goods Inventory
These are the products that have completed their manufacturing process and are ready to sale in the market.
- Stores and spares
These include the products or materials, which are accessories to the main products for the sales. These materials do not directly enter production process but are necessary for production. **Need for Inventory**

Many economists have researched and have given certain motives for holding inventories:

- **The Transaction Motive**
It is important for all the business firms to maintain a certain level of inventories to eradicate any delay production and smooth running of Business

- **The Precautionary Motive**

A business has to meet unpredictable changes in the demands and supply of materials which makes it important for it to hold certain amount of inventories.

- **The Speculative Motive**

A firm need to maintain inventories to reduce its ordering costs and avail quality discounts by taking advantages of price fluctuations and saving in re-ordering costs, etc.

- **Contractual requirements**

Sometimes it may be necessary for a firm to carry a certain level of inventory to meet a contractual agreement.

INVENTORY MANAGEMENT

Inventory management is not only concerned with keeping enough material or recourses on hand to avoid running out at the time of operations but to maintain a small enough inventory to balance for a reasonable amount on return on investment. In manufacturing, wholesale and retail trade the investment on inventory is very high. According to a study, In India 29 major industries has revealed that the average cost of material is 64 paise and the cost of labour and overhead is 36 paise in a rupee.

All of these factors insists upon the fact that the proper inventory management is important to the financial health of the corporation; being out of stock forces customers to turn to competitors or result in the loss of business . The excessive level of inventory might result in high inventory carrying costs, including the cost of capital tied up in inventory warehouse fees, insurance etc.

An effective system of inventory management helps in determining

- a) What to purchase?
- b) How to purchase?
- c) From whom to purchase?
- d) Where to store?

Thus, Inventory management is considered as maintain efficient control and management of capital investment in raw materials and supplies, work-in-progress and finished goods for the purpose of obtaining maximum return from investment.

Techniques of inventory management

➤ **Economic Order Quantity**

It is the lowest amount of inventory you must order to meet peak customer demand without going out of stock and without producing obsolete inventory. Its purpose is to reduce inventory as much as possible to keep the cost of inventory as low as possible.

Economic order quantity uses three variables: demand, relevant ordering cost, and relevant carrying cost.

- **Demand:** The demand, in units, for the product for a specific time period.
- **Relevant ordering cost:** Ordering cost per purchase order.
- **Relevant carrying cost:** Carrying costs for one unit. Assume the unit is in stock for the time period used for demand.

➤ **ABC Analysis**

An analysis of a range of items that have different levels of significance and should be handled or controlled differently. It is a form of Pareto analysis in which the items (such as activities, customers, documents, inventory items, sales territories) are grouped into three categories (A, B, and C) in order of their estimated importance. 'A' items are very important, 'B' items are important, 'C' items are marginally important.

➤ **FIFO and LIFO**

FIFO and LIFO are accounting methods used to value your inventory and report your profitability.

FIFO (first in, first out) is an inventory accounting method that says the first items in your inventory are the first ones that leave – meaning you get rid of your oldest inventory first.

LIFO (last in, first out) is an inventory accounting method that says the last items in your inventory are the first ones that leave – meaning you get rid of the newest inventory first.

➤ **Inventory turnover ratio**

Inventory turnover is the number of times a company sells and replaces its stock of goods during a period. Inventory turnover provides insight as to how the company managing costs and how effective their sales efforts have been.

- **The higher the inventory turnover, the better** since a high inventory turnover typically means a company is selling goods very quickly and that there's demand for their product.
- **Low inventory turnover**, on the other hand, would likely indicate weaker sales and declining demand for a company's products.

Calculating Inventory Turnover

Cost of Goods Sold ÷ Average Inventory or Sales ÷ Inventory

- **Average inventory** is used in the ratio because companies might have higher or lower inventory levels at certain times in the year.
- **Cost of goods sold (COGS)** is a measurement of the production costs of goods and services for a company. COGS can include the cost of materials, labor costs directly related to goods produced, and any factory overhead or fixed costs that are directly used in the production of goods.

Objectives of the study

- To review the inventory management techniques of Mangal Agency.
- To examine the inventory management efficiency by using techniques such as:
 - ABC Analysis
 - EOQ Analysis
 - Inventory turnover ratio
- To suggest best possible change to increase the efficiency of inventory management of the company.

Research Methodology

- **Type of study :** Descriptive study
- **Area of work :** Production and operation
- **Place of company :** Jaipur
- **Tools used for analysis:** Tables, Flowchart and graphs.
- **Sources of data :** Primary data and secondary data.
 - Primary data
 - Unstructured interview
 - Interactions with labours
 - Secondary data
 - Sales report
 - Inventory reports

ANALYSIS

Inventory management at Mangal agency

The purchases of inventory are totally depended on demand and supply of the market. At first, orders are placed by the wholesaler and retailer. After getting these orders they estimate a probable demand and then place their order for Raw material, Chemicals and Packaging material.

After receiving the raw materials from supplier the quality of plastic granulates are checked because quality is very important for them. In overall production process 3-4 times the quality is checked and thereafter quality check seal on products.

The inappropriate management of raw materials causes delay in delivery of goods to the customer, which results in poor brand image and customer dissatisfaction ultimately resulting in loss of business.

Currently, they are using FIFO method for managing their inventories and delivery of goods to the customer. First In First out (FIFO) means first order should deliver first and after that continue process. It is one of good way of delivery that makes the customer satisfied.

Every detail about the availability of stock is under the supervision of supervisor as he knows how much stock is available, and how much order should be placed. For every order they keep the numbers for identification.

There is separate warehouse for keeping the different types of inventory like Raw material, chemicals, packaging material, semi finished good and finished good. Raw materials includes plastic granulates which converted into HDPE pipes and fittings.

Packaging material includes colours, sacks striplings, etc. Finished goods and packaging material are kept in same warehouse right side finished good and left side packaging material. Finished goods are aligned order wise and packaging material is placed as per convenience.

The company is very strict about the waste management of its raw materials, as it get recycled its wasted material into plastic granulates and again use it for making quality products with it.

Advantages of FIFO method:

- It saves money and time in calculating the exact cost of the inventory being sold because the cost depends upon the most former cash flow of purchase to be used first.
- It makes manipulation of income report in financial statements difficult, as there remains no vagueness about the values.
- It shows increased gross and net profits in times of increasing prices of goods.

Disadvantages of FIFO method:

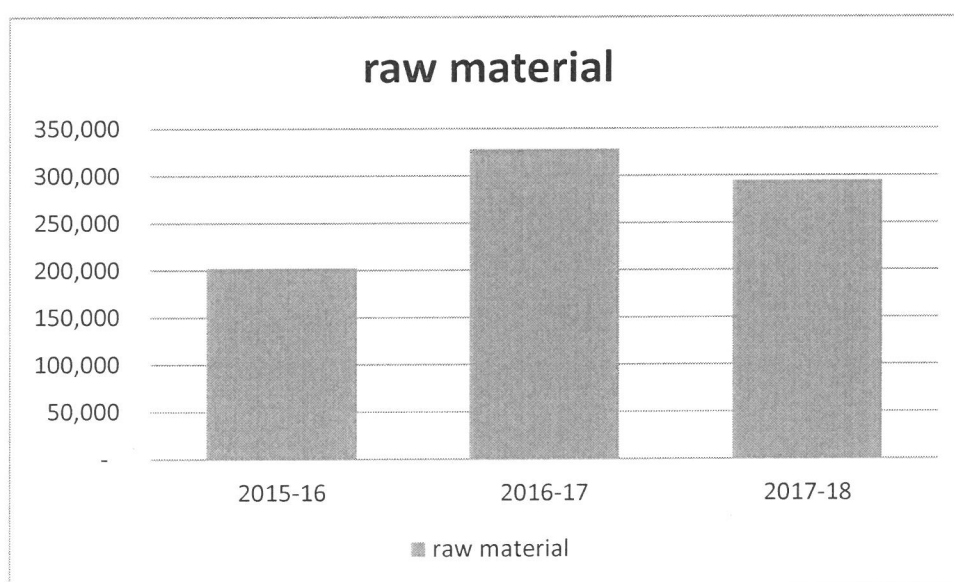
- At the time of inflation it results in higher profits, due to which higher "Tax Liabilities" incur. It results in cash out flow in relation to tax charges.
- It is not an appropriate measure as the materials purchased have fluctuating price pattern, because this results in misstated profits for the same period as different costs of same goods during that same period are recorded.
- As it is based upon the rates of inflation. It oversimplifies the calculation of the figure of costs because the costs may also absorb the effect of other variables like supply and demand, transfer pricing, foreign exchange etc.

Inventory of analysis of the company

Closing stocks (estimated)

Raw Material

Year	Quantity (kg)	Value
2015-16	6,049	3,02,000
2016-17	7,782	4,28,000
2017-18	6,567	3,94,000

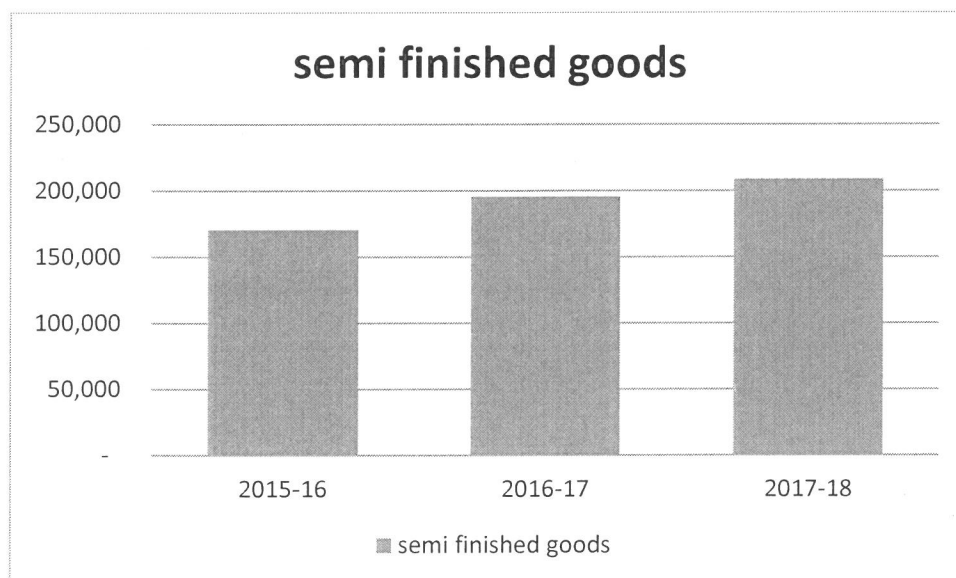


Interpretation

Inventory raw material has increased from Rs.3,02,000 in 31.3.16 to Rs.4,28,000 in 31.3.17 and decreased to Rs.3,94,000 in 31.3.18. This happened due fluctuation in the production process, which caused the raw materials to accumulate and working capital blockage.

Semi-finished goods

Year	Quantity	Value
2015-16	2,132	1,70,500
2016-17	2,386	1,95,600
2017-18	2,500	2,08,000

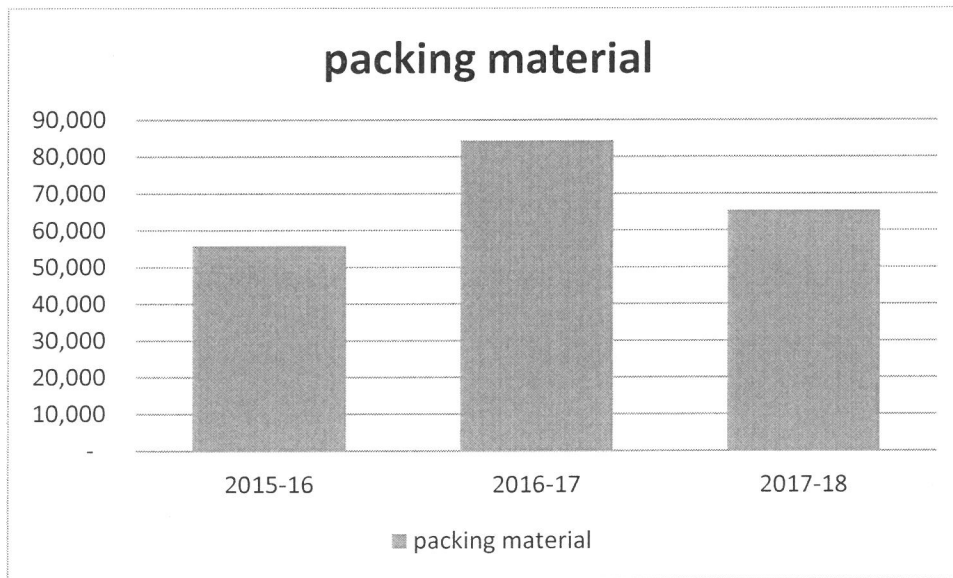


Interpretation

The stock of semi finished goods has been increasing from Rs.1,70,500 at end of F.Y. 2016 to Rs.1,95,600 in at end of F.Y. 2017 to Rs.2,08,000 at end of F.Y. 2018. This increase is mainly due to delay in production process, which shows lack of efficiency in production.

Packing material

Year	Quantity	Value
2015-16	22,349	55,800
2016-17	24,129	84,000
2017-18	18,708	65,400



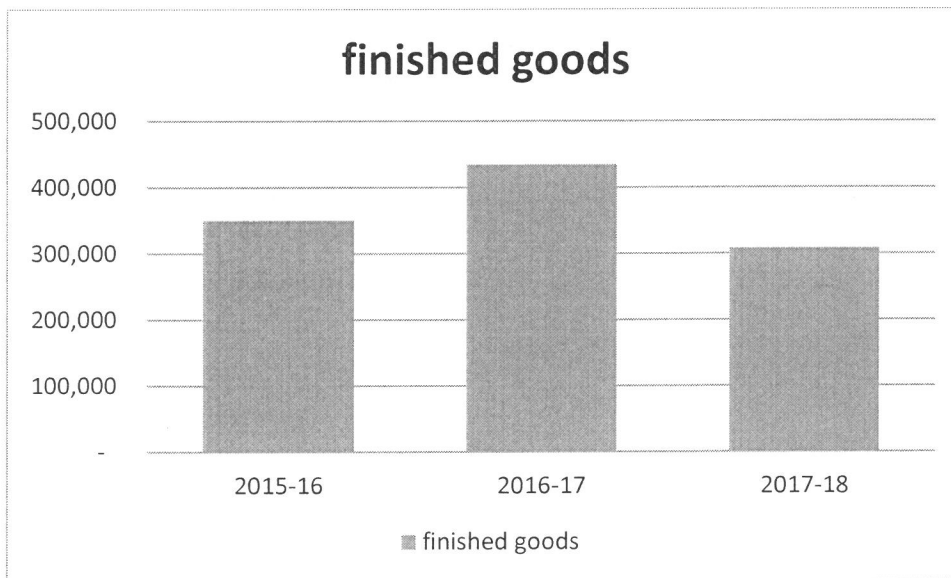
Interpretation

The stock of packing material has increased from Rs.55,800 at end of F.Y. 2016 to Rs.84,000 at end of F.Y. 2017. This is due to increase in finished products and decrease in demand in the market

The inventory at end of F.Y. 2018 decreased to Rs.65,400. This is due to decrease in finish products and increase in demand in market.

Finished goods

Year	Quantity	Value
2015-16	3,688	3,50,000
2016-17	4,575	4,34,000
2017-18	3,148	3,07,000



Interpretation

The stock of finished goods has increased from Rs.3,50,000 at end of F.Y. 2016 to Rs.4,34,000 at end of F.Y. 2017 and decreased to Rs.3,07,000. This is due to the fluctuating sales of the company. The co. should produce goods according to demand and it should also decreased the cost of goods for greater sales.

ABC Analysis

The selection is done on bases of consumption values

ABC classification for the year 2017-18

ABC Class	Criteria	No. of Materials	Cumulative consumption value%
A	70% consumption	8	74.89
B	20% consumption	20	18.78
C	10% consumption	30	5.33
Total	100	58	100

Interpretation

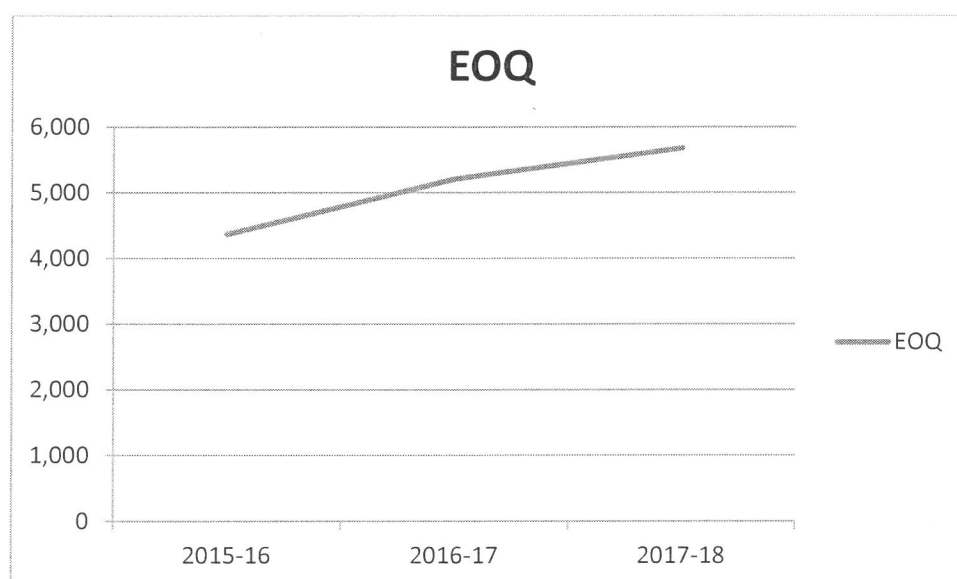
A class item having criteria of 70% consumption value has 8 no. of materials with 74.89% consumption value. These items are required to be ordered frequently to reduce the capital blockage in inventory. They should have safety stock and follow strict control.

B class items include 20% consumption value products which have 20 no. of with 18.78% of cumulative consumption value. These items require periodic follow up and to have moderate safety stock.

C class items have criteria of 10% of consumption value products which have 30 no. of materials with 5.33% of cumulative consumption value. These items require exceptional follow up and high safety stock.

Economic order quantity Analysis

Year	Unit per year (kg.)	Fixed cost per order	Cost of holding per unit	EOQ
2015-16	1,58,900	1800	30	4,367
2016-17	1,82,600	2600	35	5,209
2017-18	2,15,000	3000	40	5,679



EOQ

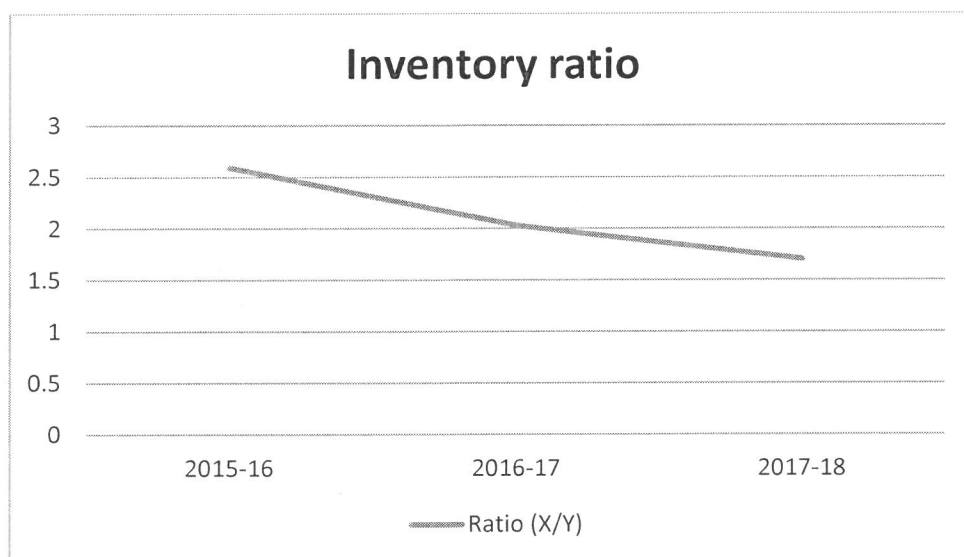
Year	Unit per year (kg.)	Fixed cost per order	Cost of holding per unit	EOQ
2018-19	1,85,500	2,466	35	4,368

Interpretation

The economic order quantity of the company is around 4000kg. - 5000kg as it has the least total cost of inventory.

Inventory turnover ratio

Year	Sales (X)	Inventory (Y)	Ratio (X/Y)
2015-16	2,73,00,000	1,05,00,000	2.6
2016-17	1,97,00,000	97,30,000	2.02
2017-18	2,04,60,000	1,20,00,000	1.70



Interpretation

The sales and inventory of the company has a positive correlation, But it seems like the company is only focusing on sales and not inventory management as its inventory turnover ratio for the last 3 years have been decreasing from 2.6 to 1.70.

FINDINGS

- The company follows FIFO method for inventory management.
- The raw material management of the company lacks efficiency as the materials at the end of year 2016 and 2017 were up to Rs.4,28,000 which were then reduced to Rs.3,94,000 in year ending 2017-18.
- The company has a slow production process as there were semi-finished goods of Rs.2,08,000 at end of F.Y. year 2017-18.
- The co. should produce goods according to the market demand as in last 3 years it had 3-4 lacks of an accumulated finished goods
- Company is maintains zero safety stock which causes loss in production.

OBSERVATIONS

- The ABC analysis shows that;
 - A class item having criteria of 70% consumption value are required to be ordered frequently to reduce the capital blockage in inventory.
 - B class items include 20% consumption value are require periodic follow up and to have moderate safety stock.
 - C class items have criteria of 10% consumption value are requiring exceptional follow up and high safety stock.
 -
- According to EOQ analysis the co. should order their raw materials when 4,000kg.-5,000kg of plastic granulates are left.
- The inventory turnover ratio of the company is decreasing as at the end of year 2015- 16 was 2.6, in 2016-17 it was 2.02 and in year 2017-18 it was 1.70. It means the number of times the company sells and replaces its stock of goods during a year is decreasing.

SUGGESTION

- The company can create a system where a periodical review of inventory could be done so that the inventories can be kept under control.
- .The movement of items can be studied so that any non moving items can be identified and suitable action can be done.
- The movement of items can be studied so that any non moving items can be identified and suitable action can be done.
- The company is maintaining zero safety stock for all items, if it starts maintaining safety stock for important items, due to which delay in production can be eliminated and orders can be supplied on time which will result in a better credibility of the company.
- In order to maintain the Re-order level, Min-stock level and Economic order quantity the company should consider the market demand of the company.
- The inventory turnover ratio can be increased by increasing the sales level and maintaining the required inventory levels.

REFERENCES

Books

- Financial Management by Khan and Jain
- Financial Management by L.M Prasad

Websites

- www.indianmirror.com
- <https://www.ibef.org>
- <https://www.investopedia.com>