

**Cost Reduction at Petrochemical industry
by
Material Management Techniques**

Abstract

For the project, MRP (Material Requirement Planning) sheet was analyzed and many products were observed in Inventory since a year. It was required to solve this problem of excess Inventory in the warehouse. For finding out a solution to this I segregated the products as per the reasons provided by the marketing Department and Scrapping the obsolete Raw Material Inventory as well as providing solutions for Finished Goods Inventory.

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Abbreviations

IATF – International Automotive Task Force

MRP – Material Requirement Planning

ERP – Enterprise Resource Planning

VMI – Vendor Managed Inventory

SLA – Service Level Agreement

JIT – Just in Time

RM – Raw Material

FG – Finished Goods

Project

Raw Material and Finished Goods Storage Cost Reduction

1.1 Theory

1.1.1 Material Management

Material Management is a scientific technique which is concerned with the planning, organizing and controlling the flow of materials from their initial purchase through internal operation to the distribution to the service points.

BASIC FUNCTIONS OF MATERIAL MANAGEMENT

1. Effective management and supervision.
2. Sound purchasing methods.
3. An efficient purchase system.
4. A simple inventory control programme.
5. A result oriented requisition and distribution system.
6. Written policies and procedures.

For the best results, the purchasing, receiving & paying of invoice should be done by separate persons.

PURPOSE OF MATERIAL MANAGEMENT

1. **To gain economy in purchasing**
2. To satisfy the demand during period of replenishment
3. To carry reserve stock to avoid stock out
4. To stabilize fluctuations in consumption
5. **To provide reasonable level of client services**

ADVANTAGES

1. Improved accountability
2. Better coordination
3. Better performance
4. Analysis of data
5. Better team work

Objectives of Material Management

Primary Objectives	Secondary Objectives
Right Price	Economic Forecasting
High inventory turnover	Inter-departmental harmony
Low procurement cost	Product improvement
Continuity of supply	Standardization
Consistency in quality	Make or buy decision
Cordial relationship with supplier	New materials & products
Development of vendors	Favorable reciprocal relationships
Good information system	
Low storage cost	
Good records	

Conclusion:

Material management is an important management tool which is very useful in getting the right quality & right quantity of supplies at right time.

Provides good inventory control & helps in adopting sound methods of condemnation & disposal, and therefore improves the efficiency of the organization, whether it is Private, Government, Small organization, Big organization or Household. All these makes the working atmosphere healthy.

1.1.2 Techniques for Material Management

1. JIT (Just-in-Time) manufacturing –

JIT eliminates waste by providing the environment a perfect manufacturing processes and simplifying them. In other words, JIT is a combination of techniques used to improve operations.

Objectives of JIT: The goal of JIT manufacturing is to identify the perfect process, making the process as simple and efficient as possible to:

- a) Reduce Cost
- b) Improve Quality
- c) Improve Performance
- d) Improve Delivery
- e) Add Flexibility, and
- f) Increase innovativeness

2. Enterprise Resource Planning (ERP) -

“ERP is a computer-based system designed to streamline various operations and information flows in the company”. Instead of each department having its own database of information, ERP puts all of the information into a single place.

This helps with the decision-making process for each department and a department no longer has to wait for a reply from another department in the company to make a decision. This makes things a lot easier and satisfies customers as well.

Most large companies in the world use ERP to manage various aspects of their businesses like finance, human, resource, products planning, production, purchase, inventory control, interacting with suppliers, providing customer service and tracking orders.

1.1.3 Inventory

The literary meaning of the word “Inventory” is stock of goods. Every enterprise needs inventory for smooth running of its activities. It serves as a link between production and distribution process. The unforeseen fluctuation in demand and supply of goods also necessitates the need for inventory. It also provides a cushion for future price fluctuations.

Some Specific Frequently Encountered Difficulties:

1. Periodic, severe backorders inability to meet delivery promises.
2. Continuously growing inventory quantities while the other backing is remaining constant or is also growing.
3. High rate of customer turnover or order cancellations.
4. Uneven productions with frequent layout & rehiring.
5. Frequent need for uneconomical production runs to meet sales requirements.
6. Excessive machines down time because of material shortage.
7. Periodic lack of adequate storage spaces.
8. Consistently large inventory writes down because of price decline distress scales, disposal of obsolete or slow-moving stock.
9. Widely varying rates of inventory loss of turnover among branch ware houses of among inventory items.

1.1.4 Dead Stock

Dead stock is inventory that a company has held for a long time and is unlikely to sell. To get rid of dead stock, companies may employ strategies such as offering discounts or bundling dead stock with better-selling products.

Dead stock impacts:

- a) revenue and cash flow,
- b) takes up valuable warehouse space and
- c) may even threaten a business's viability.

1.2 Main Reasons for Dead Stock Inventory

1. Defective Product

Defective products are the least troubling type of dead stock inventory because it may be possible to return the products to be fixed or replaced. For example, you can contact the manufacturer and request a return authorisation (RA) for the merchandise where there is a clearly defective product. The vendor would likely issue you a credit for the inventory stock.

2. Low Demand

This type of dead stock inventory is one of the hardest to deal with. Your business bought it expecting it to sell, but the customers simply do not like it. This may be because the product is no longer popular, it has been rendered obsolete by newer products, or the product's initial appeal was never strong to begin with.

3. Not accepting Reality

Discounting should move dead stock but if a retailer does not act, the items will continue to collect dust, costing money. However, retailers might hold on to dead stock inventory hoping it will sell. This may be due to a belief the retailer has that the merchandise is worth more than what consumers are willing to pay. If prices are kept high under the assumption that customers will change their minds, it can lead to products not being sold at all. The retailer might base the actions on the costs they paid to procure the merchandise and the profit projections that led them to stock the products in the first place.

1.3 Problem Statement

Non availability of Space for Storing Finished Goods and Raw Material. Due to this company has to hire another warehouse from vendors or third-party storage companies for Storing Raw Material and Finished Goods.

1.4 Cause

1. The above Problem is faced because of Obsolete Raw Material lying in the store over a long period and
2. Excess Finished Goods lying in the Store.

1.4.1 Root Cause

No Specific Policy is defined for clearing of obsolete RM and excessive FG Stock.

Due to this company spends more money in the form of rent for storing FG at warehouses.

1.5 Suggestions

1. Segregating the Raw Material Stock based on the criteria given by the Marketing department such as:

- a) Month by which the RM will be liquidated after discussing with the customers.
- b) RM in Inventory needs to be scrapped as it will take 1 year or more for getting liquidated,
- c) RM will be salvaged by the customer and also there will be continuous flow of the product after the confirmed duration by the customer,
- d) Can the RM be used as a substitute to other product for another customer or it has to be scrapped and cannot be used.

Eg. A 10 Litre yellow bucket is used by 2 customers A and B. Customer A requires label on the plain yellow buckets of FG whereas Customer B requires printed yellow buckets of FG. In this situation yellow buckets of Customer A in inventory as deadstock can be used as a substitute after printing on the bucket as per the requirements of Customer B.

- 2. Bundle dead stock with more current items, selling the combination at a discount. Moving high volume of items quickly and get that dead stock out of the warehouse.
- 3. Products that will be liquidated after more than 2 years need to be scrapped.
- 4. Giveaway or a gift with purchase encourages customers to spend a little more to qualify. Not all customers will want to pay full price for an item they don't like enough, but the perception of good value for money through gifts and discounts is a great incentive to get customers buying.
- 5. Policy Decision – Quarterly Stock taking to be done and taking appropriate decisions on obsolete RM and excessive FG.
- 6. Vendor Managed Inventory can be considered for saving Inventory Holding Cost.

1.6 Benefits

1. Obsolete raw material that was scrapped helped in earning money for the scrapped materials and also saving store space for Raw Material of continuous moving products.
2. New Policy will help in reducing extra warehouse rent that was being paid along with continuous movement of Raw Material as well as Finished Goods whether it is obsolete RM or excess FG.
3. Inventory Holding Costs of excess FG as well as obsolete RM will be saved.
4. Warehouse was Optimally Utilized and there was more space available for continuous flowing Raw/Packing materials.
5. Vendor will keep certain stocks for the company based on SLA i.e., Service level agreement & the company will utilize the vendors space by keeping inventory at his end & calling as per requirement.