Inventory control.

# 4. Material Control

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## Inventory Control:-

The term inventory has a wider meaning than the term materials. Inventory includes stock of raw material work in progress, finished goods, components & supplies.

## Definition:-

"The process where by the investmen in materials & parts carried in stock is regulated within predetermined limits set in accordance with inventory policy establi-shed by the management.

## Purposes:-

1) Fixation of the limits within which the inventories are to be held.
2) Laying down of inventory policies.
3) Setting out the inventory pattern keeping in view the individual & collected requirements.
4) Avoiding abnormal wastage by exercising direct control.
5) Providing efficient warehousing facilities.

## * Principle Bases of inventory valuation:-

1) Actual cost.

The actual cost of raw material work in progress & finished stock is the most logical method of valuing invento ry.

2) Lower of the cost or Market price:-
Under this method, the inventory is valued at lower of the cost or market price

3) Replacement cost Method:
Under this method the inventories are valued of a price that would have to be paid for those items on which prices are rising.

4) Selling price Method:-
This method is accepted only in certain cases. This method can be successfully used when accurate determination of cost is not an easy exercise.

# Methods of Inventory control:-
i) Stock level
ii) Economic order Quantity
iii) ABC Analysis
iv) Perpetual & periodic inventory control.
v) Physical verification.

# Stock Levels:-
1) Re-order Level:-
i) Re-order level = Maximum Consumption × Maximum Delivery time

ii) Re-order level = Minimum Stock + (Average Usage × Average Re-order period)

2) Maximum stock Level :

Maximum stock level = Re-order level + Re-order Quantity − (Minimum Rate of consumption × Minimum Delivery Time)

3) Minimum stock level

Minimum stock level = Re-order level − (Average Rate of consumption × Average Delivery Time)

4) Average stock level

i) Average stock level = $\frac{\text{Maximum stock level} + \text{Minimum stock level}}{2}$

ii) Average stock level = Minimum stock level + $\frac{1}{2}$ (Re-order Quantity)

5) Danger stock level :

Danger stock level = Average Rate of Consumption × Maximum Delivery time for Emergency purchases.

2) Economic order Quantity :-

It is also termed as "Re-ordering Quantity" or "Economic lot size". It is the most economical quantity to be ordered under normal conditions. This is one of the important decision making area. The purchase Department has to decide about the number of units of each type of required raw materials to be purchased at a time. For this purpose, it has to consider two important items of cost pertaining to material. They are ordering or acquisitions cost & carrying cost. ordering cost are those which pertain to the acquisition of materials. They are the costs of placing a purchase order. carring cost represent the costs which relate to the carrying of materials from one point to another.

* following formula using the calculate Economic order quantity.

$$EOQ = \sqrt{\frac{2AO}{C}}$$

EOQ = Economic order Quantity
A = Annual usages / Annual consumption
O = Ordering cost / Receiving cost
C = Carrying cost.

## * ABC Analysis :-

It is a system of inventory control. To exercise proper control on stores, it is essential that the store items should be classified according to values so that the most valuable items may be paid greater & due attention regarding their safety & care as compared to others. The inventories are arranged in order of magnitude & are classified in three classes as follows.

| | |
|---|---|
| 'A' class items | Small percentage of the total items but having higher value |
| 'B' class items | More percentage of the total items but having medium values. |
| 'C' class items | High percentage of the total items but having low values. |

'A' category of items consists of only a small number i.e. 5% to 10% of the total items but they are quite valuable, the value being 70% to 75% in the total cost inventory.

'B' Category of items are relatively less important they may be 15% to 25% of the total items of material handled by stores & have 15% to 25% of the total value of inventory.

'c' category of items consists of a large numbers i.e. 70% to 75% of the total items but carrying little value ranging from 5% to 10% of the total value of inventory.

# Periodic inventory control Method:-

Under this Method, the entire stock is verified at periodic intervals, usually once a year at the close the annual accounting period, so as to value the closing stocks for preparation of final accounts. If it is chosen to verify the stocks of two or more periodic intervals, the verification is arranged during the slack season. for periodic verification - the factory work is stopped for the required number of days & the verification has got to be done urgently.

Advantages :-

1) To facilities valuation of stores for exhibition in the final accounts.
2) The correctness of the description in the bin card can be cheked up
3) Irregulations in store keeping are automatically checked.
4) Mix-up of More than one item in one bin or keeping of the same stock at two places, are also brought out.

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## Disadvantages:-

If stock is verified at frequent intervals of less than a year such a course becomes expensive.
The need for stoppage of activities even for small periods for the purpose of stock verification makes the method more costly.
Periodic stock verification can have more mistakes

## Perpetual inventory control Method:-

The systematic maintenance or regular stock records is usually termed as perpetual inventory control Method. This Method of stock taking implies a complete, systematic & updated account of each item of stock both or records & physical goods. Under this method stocks are checked regularly through out the year in a systematic manner. The verification plan & stock taking programs are so chalked out & the actual work of counting weighting, measuring & listing of items are so well distributed that the entire stock is accurately checked in routine way without duplication throughout the year. The notice regarding a particular stock to be checked is given to the storekeeper only on the day of checking the stock, & not earlier.

Advantages :-

1) The system helps in avoiding the long & costly work of physical checking of all the stock at the end of the year.
2) A system of integral check remains in operation all the time.
3) Discrepancies are readily discovered rectified. This gives an opportunity for preventing a recurrence in future.
4) A detailed & reliable check on stores is obtained.

Disadvantages :-

1) Unless the bin cards & the stores ledger are kept upto date effective control cannot be exercised & the actual work of continous stock taking is hampered simultaneously.
2) The necessity for an agreement between cards & stores ledger balances further creates the problem.

* Bin Card :-

A store keeper often maintains a record of quality of each material, such record being known as Bin Card. The Bin Card show the details of receipts & issues of material & the balance in stock at any time. The record is of immense help to storekeeper in controlling the stock position. A bin card is attached to the bin,

drawer or any other container in which Material is stored. An entry is made at the time of each receipt or issue & the new balance in stock is calculated.

As a storekeeper usually has to initiate purchase requisitions, the maximum & minimum stock levels are shown on the bin card along with ordering level & ordering quantity. This information helps the storekeeper in preparing the necessary purchase requisition when the stock reaches ordering level.

Usefulness :-

1) It is used for entering the receipts, issues & the closing balance of each item of stores.
2) It helps in requistioning the materials when the re-order level is reached.
3) Location code of the material helps in identifying the location of required material.
4) It provides an independent check on the stores Ledger.

System -

i) Double Bin or Two Bin System :-

Two bin system is adopted. In this system to bins are maintained for each Material.

| A | B |
|---|---|
| Minimum Quantity | Balance Quantity |

ii) Triple Bin or Three Bin System:-

While the double bin system is followed for stricter material control which reduces the risk of shortage of materials under normal circum. stances. Sometimes necessity may arise when the double bin system may be modified into Triple bin system.

Triple Bin System

| | Minimum Level | |
|---|---|---|
| A1 | A2 | A3 |
| Danger level | | |

* Store Ledger:-

This record gives the same information regarding stores as bin card & in additional it gives the mone values of materials. Separate Ledge folio are maintained in it for each item of material. The ledger sheets may be loose leaf from or Separate bindings may be used for each type of Material. The store Ledger is maintained in the cost accounting department & is one of the basic records for material accounting in a

Cost system. There are mainly three sections on this ledger i.e. receipts, issue & balance, each of these with oppropriate sub-divisions showing date, quantity unit price & total cost. Two additional sections are usually included. Materials on order & materials Reserved.

## Inventory Turnover Ratio:-

Inventory turnover ratio is considered as one of the most important value-based techinique of inventory control. Usually this ratio is calculated basically to find out the actual rate of material consumption & the speed at which materials are replaced.

1) Inventory Turnover in times :-

$$= \frac{\text{Value of Material consumed during the period.}}{\text{Cost of Average stock held during the period.}}$$

2) Inventory Turnover in days:

$$= \frac{\text{Number of Days during the period}}{\text{Stock turnover ratio.}}$$

$$\text{Average stock} = \frac{\text{opening stock} + \text{closing stock}}{2}$$