

Cost Accounting

Summary

Chapter Two

Materials

1. Introduction :

Material usually forms a major part of the total cost and constitutes one of the important assets in majority of businesses.

Material is categorized as -

Direct Material -

Is defined as material that can be easily identified & attributed to individual cost centers or cost units.

Indirect Material -

Is defined as material, that assists production but does not form a part of finished products.

Hence we control material costs by following -

- ♣ Inventory Control
- ♣ Purchase Control
- ♣ Stores Control
- ♣ Issues of Materials
- ♣ Accounting & Control of Wastages.

2. Inventory Control:

Inventory is defined as 'tangible property held

- [i] for sale in the ordinary course of business or
- [ii] in the process of production for sale

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or [iii] for consumption in the production of goods or service for sale, including maintenance supplies and consumables but not machinery spares.'

Inventories -

- ♠ are necessary as they allow the production to take place in stages.
- ♠ allow units holding them to schedule their operations independently.
- ♠ avoid idle time of men and machines caused by non-availability of materials for processing.
- ♠ are necessary to meet customer requirements without loss of time.

At the same time excessive inventories -

- ♠ increase purchasing and storage costs.
- ♠ tie up funds increasing interest burden.
- ♠ occupy productive area through surplus materials.
- ♠ tempt operators to be careless in using materials giving rise to avoidable wastages.

Hence the immediate need for prudent inventory control!

3. Objectives of Inventory Control:

- ♠ To provide continuous flow of required materials, parts & components for efficient and uninterrupted flow of production.
- ♠ To minimize investment in inventories, keeping in mind operating requirements.
- ♠ To provide for efficient store of materials, to protect inventories from loss or damage.
- ♠ To minimize surplus and obsolete items.

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4. Methods of Inventory Control

Two common techniques of inventory control :

■ ABC Plan ■ Fixation of Inventory levels

■ ABC Plan

Here very close attention is paid to critical few items with high usage value, lead time, technical or other problems and minimum efforts and expense are spent on several low value items in inventory.

Management concentrates on vital few items by isolating them from trivial but many items.

Steps to implement ABC Plan -

1. Determine annual usage of each item in stock.
2. Determine its usage value; quantity x price.
3. Beginning with item of largest cost, arrange all items in descending order of their costs.
4. Compute total cost of each item as a % of total cost of all items.
5. Items on the top of the list are A items requiring maximum attention. Balance items can be classed as B & C.

■ Fixation of Inventory levels:

In order to control of stocks and purchases, various levels are fixed as under :

[a] Maximum level - This represents the level above which stocks cannot be held.

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[b] Minimum level - This represents the level below which stocks cannot fall.

[c] Danger Level - Normal issues are stopped at this level below the minimum level. Specific instructions are required to make issues.

[d] Ordering level - This represents the level at which indents be placed to replenish stocks.

[e] Ordering Quantity - This is the quantity that is to be ordered on reaching ordering level.

[a] Maximum level -

Factors to be considered in fixing the level:

- Investment to be made in inventory
- Storage space available.
- Storage and insurance cost.
- Shelf life of materials. Items deteriorate if stored over a long period.
- Obsolescence of assemblies for which items are stored.
- Consumption per year.
- Lead time for procurement.
- Seasonal nature of materials. More stocks required during peak season.
- Price advantage through bulk purchasing.
- Economic Order Quantity.

Maximum level is calculated as follows :-

Maximum Stock level =

Re-order Level + Reorder Quantity less
(minimum consumption x minimum reorder period).

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[b] Minimum level -

Factors to be considered in fixing the level:

- Consumption per annum.
- Lead time for procurement.
- Production requirement.
- Minimum quantity that could be advantageously purchased.
- If an item is made to order minimum level is not applicable.

Minimum level is calculated as follows.

Minimum level = Re-order Level less (Normal Consumption x Normal reorder period)

[c] Danger Level -

Danger level is also called Safety Stock Level.

It is decided by balancing stock out costs with inventory carrying costs. It lies between minimum level and nil stock (stock out).

It is calculated as follows.

Minimum level = Re-order Level less (Normal Consumption x Normal reorder period)
or

Maximum consumption - average consumption)
multiplied by Lead Time.

[d] Ordering level-

This level should be fixed in such a way, so that when an indent is placed at the ordering level, the stock reaches the minimum level just when the replenishment against that indent is received.

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Ordering Cost

It refers to expense that a firm has to incur to place orders for replenishment of stocks. It includes rent for space used by purchase department, the salaries of purchase department, depreciation of equipment used by purchasing department, stationery, courier charges, telephone charges incurred in issue and follow up of orders.

If more orders are issued, ordering costs increase but lesser inventory costs are incurred. If lesser orders are issued, ordering costs reduce, but larger inventory has to be carried increasing inventory carrying costs.

Optimum order quantity that minimizes total of both costs is known as Economic Order Quantity.

Formula for calculating EOQ

$$EOQ = \sqrt{\frac{2U*P}{S}}$$

U = Annual consumption (units) in a year.

P = Cost of placing an order.

S = Annual cost of storage of one unit.

6. Stock Valuation :

Stock valuation consists of two processes -

- ascertainment of quantities of raw materials, x
- and valuing them on an equitable basis.

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Ascertainment of quantities - Methods :-

► Physical Balance Method :

Stocks are physically counted, weighed etc

► Book Balance Method :

This method relies on book balances to determine quantities in stock. Effective if stocks are verified continuously under perpetual inventory.

► Theoretical method:

This method is used especially to quantify work in progress, where physical quantification is not feasible.

Ascertainment of Value - Methods :-

► At cost :

Stocks are valued at cost.

► At market price :

Stocks valued at their market price. If market price is higher, this results in accounting unrealized profits, hence not much in practice.

► At cost or market whichever lower:

This is the most commonly used method especially when market price of some stocks is less than market price.

6. Pricing Material Issues :

Material issues are priced using three major methods.

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1. Cost price Method.

- a] Specified price
- b] First-in First-out (FIFO)
- c] Last-in First-out (LIFO)
- d] Base Stock.

2. Average Price Method.

- a] Simple Average
- b] Weighted average
- c] Periodic Weighted Average
- d] Moving Simple Average
- e] Moving weighted average.

3. Notional Price Method .

- a] Standard price
- b] Inflated Price
- C] Market Price

Let us review them in brief.

1. Cost price Method.

1a] Specified price :

Sometimes materials are purchased for a specific job or issues can be identified with a particular receipt. In such cases actual purchase price can be applied to issues. This method has limited application.

1b] First-in First-out (FIFO)

Here the principle adopted is price of material received first is applied to issues first.

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Advantages:

- i] the oldest stocks are used first and inventory consists of current values.
- ii] it is logical.
- iii] easy to understand and operate.
- iv] facilitates inter-firm comparison.
- v] Valuation of inventory and finished stocks is consistent and realistic

Disadvantages:

- i] The cost of production is not linked to current prices.
- ii] If prices are rising, production cost is understated.
- iii] When many lots are purchased at different prices, calculations become difficult.
- iv] Pricing of material returns is difficult.
- v] High inflation creates problems in replacing used materials.
- vi] More than one price has to be used to price a single issue.
- vii] Cost comparisons between two batches become unrealistic.

1c] Last-in First-out (LIFO)-

Material issues are priced at latest price of receipts in stock. Hence stocks get valued at old prices. The method fully satisfies the principle of

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matching costs with revenue in income determination.

Advantages:

- i] Simple & useful if transactions are few.
- ii] Tax burden reduced in inflation as issues priced at higher prices,
- iii] Matches most current cost with revenue.
- iv] Reveals real income in rising prices.
- v] Minimizes unrealized inventory gains.

Disadvantages:

- i] If prices of receipts vary, method becomes complex.
- ii] More than one price needs to be used for a single issue.
- iii] Inter or intra firm comparisons become unrealistic.
- iv] Stocks need to be adjusted in case of falling prices, as cost price can be higher than market price.
- v] Unless purchase quantities match sales quantity, revenues not matched with most current costs.
- vi] The company can plan purchases to report lower or higher income.
- vii] Certain accounting standards prohibit use of this method.

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2. Average Price Method.

2a] Simple Average:

Issues are priced at average prices of receipts ignoring quantities purchased.

This method can be used when prices are stable.

It is calculated by dividing the total rates of material. New average is calculated after every receipt.

2b] Weighted Average:

Issues are priced at average prices of total quantities and total costs.

It is calculated after every receipt by adding the quantity received to the stock in hand and cost of the receipt to the cost of stock in hand.

The total cost is divided by total quantity to arrive at the issue price.

Advantages :

- i] It is logical and consistent.
- ii] Changes in prices are evened out.
- iii] The values reflect actual costs.

Disadvantages :

- i] Involves considerable clerical work.
- ii] When prices change frequently, it is inconvenient.
- iii] It is not actual price, hence it is unrealistic.

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2c] Periodic Weighted Average:

The method is same as weighted average except that fresh average is calculated periodically and not after each receipt.

It is calculated by dividing the total value of materials purchased during a period by the total quantity purchased.

Advantages -

- i] clerical costs are reduced.
- ii] it is useful in process costing.
- iii] short term price fluctuations do not affect the issue price.

Disadvantages -

- i] heavy clerical work involved at the end of accounting period.
- ii] fluctuations in prices are ignored till end of the period.
- iii] closing stock value is inaccurate and when all stock is consumed, residual value remains.

2d] Moving Simple Average:

In this method periodic simple average prices are further averaged. Moving average is calculated by dividing periodic average prices by number of periods taken.

It is essential that period chosen is the one in which materials are used.

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7. Waste :

Waste comprises of

- invisible loss and visible loss that cannot be collected and
- unsaleable portion of the collected loss.

Many times further costs have to be incurred to dispose of collected waste e.g. effluents.

8. Scrap :

Scrap represents unusable loss that has sale value.

It is generated from prom process, obsolescence or defects.

Income from sale of scrap is credited to the department generating it or, if value negligible, credited to P & L a/c.

9. Spoilage :

Spoilage is those materials or components which are so damaged in the process that they cannot be repaired or re-conditioned.

Spoilage can be sold as seconds or, if badly spoilt, as scrap.

It occurs due to development of defects in the process.

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10. Control over Waste, Scrap, Spoilage and Defectives :

Steps :-

- Determine controllable & uncontrollable losses.
- Set limits that can be attained.
- Ensure proper storage, handling, maintenance of inventory levels.
- Measure and report production, waste, scrap, spoilage and defectives regularly.
- Compare with standards and arrange corrective action.
- Exercise control at-
 - Occurrence.
 - Recovery, handling, storage.
 - Disposal.

■ Control at Occurrence.

1. Train workers, improve supervision & material handling.
2. Maintain equipment, balance load, simplify product design, control trials.
3. Control defects, obsolescence and deterioration.
4. Arrange strict inspection, security to avoid thefts.

■ Control at Recovery, handling, storage.

Collect at point of generation, store with care, minimize damage, theft and mis-appropriation.

■ Control at Disposal.

Necessary to maximize returns from sale.

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Steps :-

1. Segregate, Store and make goods ready for sale.
2. Select the best buyer
3. Control quantities physically.



Next, Chapter Three “ Activity Based Costing” bye !

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