Material Cost

1. Material Cost

It is one of the major element of cost in a manufacturing organisation. Thus, proper care is to be taken for this cost.

2. Components of Material Cost

(A) Purchase Cost = No. of units purchased × Cost per unit

(B) Ordering Cost = No. of orders × Cost per order

$$\text{No. of orders} = \frac{Annual\ requirement}{Order\ Size}$$

$$\text{Frequency of order} = \frac{365\ /52\ /12}{No.\ of\ orders}$$

(C) Carrying cost = Average quantity of goods × Carrying cost per unit per annum

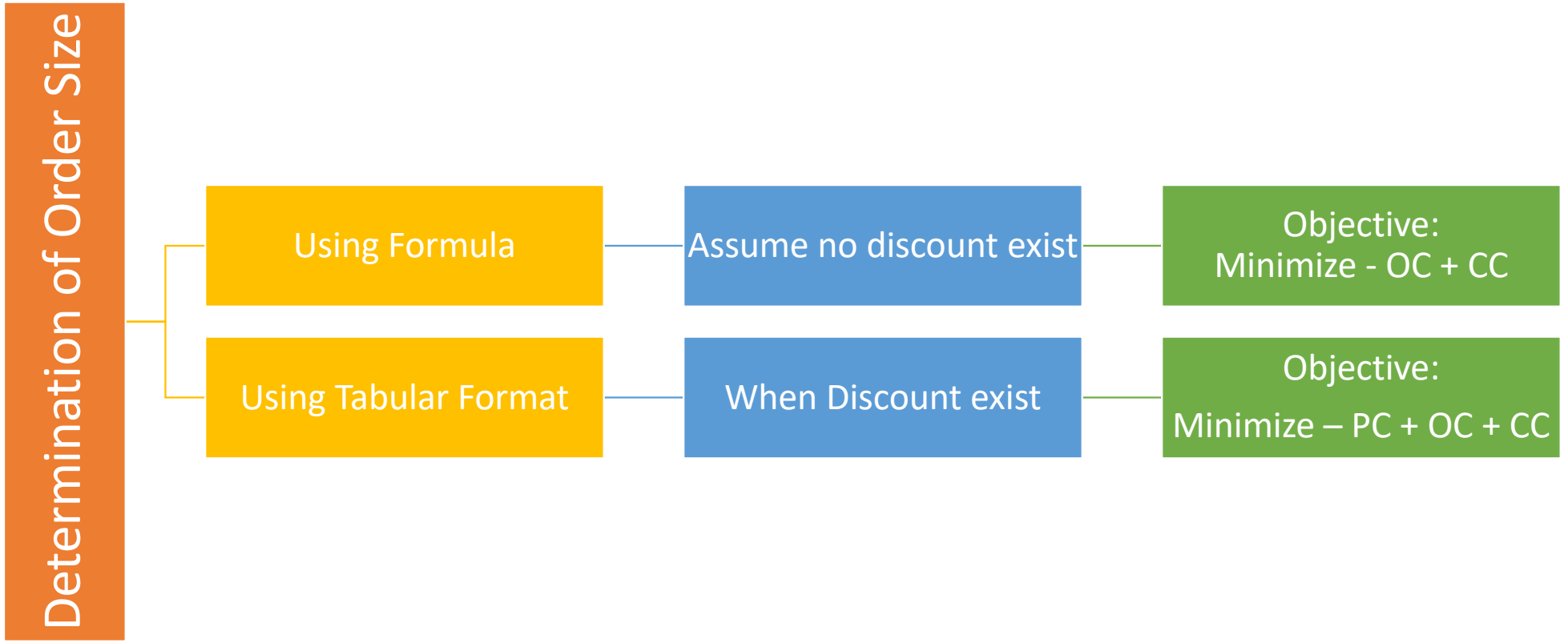
$$\text{Average quantity} = \frac{Order\ size}{2}$$

$$\text{Average quantity with safety stock} = \text{safety stock} + \frac{Order\ size}{2}$$

Material Cost

3. Determination of Order Size

It should be at the level where material cost is minimum.



Material Cost

4. Economic Order Quantity (EOQ)

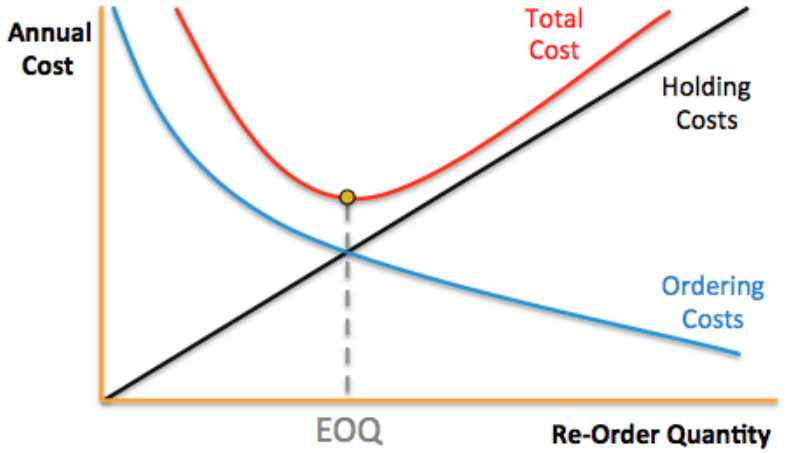
It is that order size at which sum total of ordering cost and carrying cost is minimum.

$$EOQ = \sqrt{\frac{2 \times A \times O}{C}}$$

Where, A = Annual requirement of raw material

O = Cost per order

C = Carrying cost per unit per annum



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5. Points to Remember (PTR)

(A) If carrying cost is given in % than such % is applied on purchase price per unit of material.

(B) If number of order is in decimal than take to the next round off number
e.g. 3.4 to 4, 3.1 to 4, 3.7 to 4 etc.

(C) A = Raw material purchased quantity (Prefer) or Raw material consumed quantity

(I) Production units = Sale units + Closing stock FG – Opening stock FG

(II) Raw material consumption = Production units X Raw material consumption per unit

(III) Raw material purchase = Raw material consumption + Closing stock RM – Opening stock RM

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6. Levels of Inventory

(A) Re-order level (ROL) = Maximum consumption × Maximum lead time

= Safety stock + (Average consumption × Average lead time)

= Minimum stock + (Average cons. × Average lead time)

(B) Maximum level = ROL + ROQ – (Minimum cons. × Minimum lead time)

(C) Minimum level = ROL – (Average consumption × Average lead time)

(D) Average level = $\frac{Minimum\ level + Maximum\ level}{2}$

= Minimum level + $\frac{Re-Order\ quantity}{2}$

(E) Danger level = Average consumption × Emergency lead time

= Minimum consumption × Emergency lead time

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7. ABC Analysis

It stands for always better control analysis.

Category	% Quantity	% Value	Control
A	10%	70%	High
B	20%	20%	Moderate
C	70%	10%	Low

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8. Inventory Turnover Ratio (ITR)

$$\text{ITR for raw material} = \frac{Raw\ material\ consumed}{Average\ raw\ material\ quantity} = \_\_\_\ \text{times}$$

$$\text{ITR for finished goods} = \frac{Cost\ of\ goods\ sold}{Average\ finished\ goods\ quantity} = \_\_\_\ \text{times}$$

$$\text{Frequency or Inventory holding period (days)} = \frac{365\ /52\ /12}{ITR}$$

High inventory turnover ratio indicate inventory is fast moving and vice versa.

9. Choice of Substitute Material

Select the material which has lowest cost per unit of finished goods

	Material A	Material B
Cost per kg	Rs. 20	Rs. 25
Input-output ratio	200%	120%
Cost per unit of output	Rs. 40	Rs. 30

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10. Landing Cost of Material or Valuation of Material

Items	Treatment
Trade Discount	Deduct if not already deducted
Cash Discount	Ignore
Subsidy/Grant/Incentive	Deduct
Road tax/ Toll tax/	Add
IGST/CGST/SGST	
(A) If ITC available	Ignore
(A) If ITC not available	Add to cost
Custom Duty	Add to cost
Penalty / Fine / Demurrage	Ignore – Transfer to P&L
Insurance	Add
Commission	Add
Container Cost	Add
Return value of container	Deduct
Shortage	
(A) Normal	Deduct from quantity
(B) Abnormal	Transfer to P&L

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Distribution of Freight or similar items – On the basis of Quantity

Distribution of GST, Custom duty or similar items – On the basis of value

10. Safety Stock Determination

It is determined at the level where sum total of stock out cost and carrying cost of safety stock is minimum.

Carrying cost of safety stock = Safety stock unit × Carrying cost per unit per annum

Annual Stock out cost = Annual stock out units × Stock out cost per unit

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11. Material Records

It can be done in two ways i.e. Perpetual system and Periodic system.

12. Preparation of Stores Ledger

(A) Material return from factory or production to stores

- Show as receipt at the price at which originally issued
- To be issued first in FIFO or LIFO method

(B) Material return by stores to supplier or vendor

- Show as issued in stores ledger at the price at which originally purchased
- If original price not known than at recent issue rate.

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(C) Transfer from one job to another

- No entry in stores ledger

(D) In case of normal loss, show as issue in quantity column only and thus price of balance quantity increases.

(E) In case of abnormal loss, show as issue as per the method prevailing and transfer the same to costing P&L account.