



INTER 2025



COSTING

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CHAPTER 10 PROCESS COSTING



Theory Chart

Chp10 Process Costing

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INTRODUCTION

Meaning

Process Costing is a method of costing used in industries where the material has to **pass through two or more processes** for being converted into a final product.

Example: Steel, Paper, Medicines, Soaps, Chemicals, Rubber, Paints etc.

Accounting

- It is a method of Cost Accounting whereby costs are **charged to processes** or operations and **averaged** over units produced
- A **separate account** for each process is opened and all expenditure pertaining to a process is charged to that process account.

Basic Features

Industries, where process costing can be applied, have normally **one or more** of the following **features**:

- Each plant or factory is **divided into** a number of **processes**, cost centres or departments, and each such division is a stage of production or a process.
- Manufacturing **activity** is carried on **continuously** by means of one or more process run sequentially, selectively or simultaneously.
- The **output of one** process becomes the **input of another** process.
- The **end product** usually is of **like units** not distinguishable from one another.
- It is not possible to **trace** the **identity** of any particular **lot** of output to any lot of input materials. For example, in the sugar industry, it is **impossible** to trace any lot of sugar bags to a particular lot of sugarcane fed or vice versa.
- Production of a product **may give** rise to **Joint and/or By-Products**.

COSTING PROCEDURE IN PROCESS COSTING

Materials

- Each process for which the materials are used, are **debited with the cost of materials** consumed on the basis of the information received from the Cost Accounting department.
- The finished product of first process generally become the raw materials of second process; under such a situation the account of **second process is debited** with the cost of **transfer from the first process** and also with the cost of any **additional material** used in process

Employee Cost (Labour)

- Each process account should be debited with the labour cost or wages paid to labour for carrying out the processing activities.

Direct expenses

- Each process account should be debited with direct expenses like **depreciation, repairs, maintenance**, insurance etc. related with it.

Production Overheads

- The suitable way out to recover them is to **apportion them** over different **processes** by using suitable basis.
- Usually, these expenses are **estimated in advance** and the processes debited with these expenses on a pre-determined basis.

NORMAL LOSS

Meaning

- It is also known as **normal wastage**.
- It is defined as the loss of material which is **inherent** in the nature of work.
- Such a loss can be **reasonably anticipated** from the nature of the material, nature of operation, the **experience** and technical data.
- It is **unavoidable** because of nature of the material or the process.
- It also includes **units withdrawn** from the process for **test or sampling**

Treatment of Cost Accounts

- The cost of normal process loss in practice is absorbed by good units produced under the process by taking those in units column of credit side of process account.
- The **amount realized** by the sale of normal process loss units should be **credited** to the process account.

ABNORMAL LOSS

Meaning

- It is also known as **abnormal wastage**.
- It is defined as the loss in **excess** of the Normal Loss.
- This type of loss may occur due to the **carelessness** of workers, a bad plant design or operation, sabotage etc.
- Such a loss **cannot obviously be estimated** in advance. But it can be kept under **control** by taking suitable measures.

Treatment of Cost Accounts

- The cost of an abnormal process loss unit is **equal to the cost of a good unit**.
- The total cost of abnormal process loss is **credited to the process account** from which it arises.
- Cost of abnormal process loss is **not** treated as a **part of the cost** of the product. **(net-value)**
- In fact, the total cost of abnormal process loss is debited to costing **profit and loss account**

ABNORMAL GAIN

Meaning

- Abnormal gain may be defined as an **unexpected gain** in production under the normal conditions.
- This arises due to **over-estimation of process loss**, improvements in work efficiency of workers, use of better technology in production etc.

Treatment in Cost Accounts

- The **process account** under which abnormal gain arises is **debited** with the abnormal gain and credited to abnormal gain account which will be closed by transferring to the Costing **Profit and Loss** account only with the amount of **net actual gain**.
- The **value** of abnormal gain is computed on the basis of normal production (good unit price)

STEPS IN PROCESS COSTING

Production Cost Report

- For each production process, a Production Cost Report is prepared at the **end** of each accounting **period**.
- The objective of preparing the report is to know **physical units** and **equivalent units in process**, element wise cost of goods produced and transferred, goods in process (work-in-process), units lost due to abnormal reasons i.e. abnormal loss etc.

Steps to prepare report

- **Step 1:** Analysis of **physical flow** of production units
- **Step 2:** Calculation of **equivalent units** for each cost elements
- **Step 3:** Determination of **total cost** for each cost element
- **Step 4:** Computation of **cost per equivalent unit** for each cost element
- **Step 5:** **Assignment** of total costs to units completed and ending WIP

Weighted Average Method

- Under this method, the cost of **opening work-in-process** and cost of the **current period** are **aggregated** and the aggregate cost is divided by output in terms of completed units.
- The equivalent production in this case consists of work-load already contained in opening work-in-process and work-load of current period.
- The main difference between FIFO method and average method is that units of opening work in process and their cost are taken in full under average method

VALUATION OF WIP

Need of Separate Valuation

- **Average Cost per unit** can be determined **easily** by dividing the total cost incurred during a given period of time by the total number of units produced during the same period.
- But, in reality in most of the process type industries where manufacturing is a **continuous activity** cost incurred represents the cost of work carried on **opening work-in-process, closing work-in-process** and completed units.
- The valuation of work-in-process presents a good deal of difficulty because it has **units under different stages** of completion from those in which work has just begun to those which are only a step short of completion.
- We can crack this difficulty by **converting partly finished units into equivalent** finished units.

Concept of Equivalent Units

- Equivalent production units, means converting the **incomplete** production units **into** their **equivalent completed** units.
- Under each process, an **estimate** is made of the **percentage** completion of work-in-process with regard to different elements of costs, viz., material, labour and overheads.
- Equivalent Completed Units = Actual number of units in the process of manufacture × percentage of work completed

FIFO Method of Valuation

- Under this method, cost per unit of **current period** is calculated separately without considering opening WIP.
- The **cost** to complete the opening WIP and other completed units are calculated **separately**.
- The cost of opening WIP is added to cost incurred on completing the incomplete (WIP) units into complete one.
- The total cost of units completed and transferred is calculated by adding opening WIP cost to cost on freshly introduced inputs.
- In this method the **closing stock** of work in process is valued at **current cost**.

INTER PROCESS PROFITS

Concept

- To **control cost** and to **measure performance**, different **processes** within an organization are designated as separate **profit centres**
- In this type of organizational structure, the output of one process is **transferred** to the next process **not at cost** but at market value or cost plus a percentage of profit.
- The **difference** between cost and the transfer price is known as inter-process profits

Advantages

- **Comparison** between the **cost of output** and its **market price** at the stage of completion is facilitated.
- Each process is made to **stand by itself** as to the profitability.

Disadvantages

- The use of inter-process profits involves **complication**.
- The system shows **profits** which are **not realised** because of stock not sold out.

OPERATION COSTING

Concept and Methodology

- This product costing system is **used when** an entity produces **more than one variant** of final product using **different materials** but with **similar conversion** activities.
- Which means conversion activities are similar for all the product variants but materials differ significantly.
- Operation Costing method is also known as **Hybrid** product costing system as **materials costs** are accumulated by **job order or batch** wise but conversion costs i.e. **labour and overheads** costs are accumulated by department, and **process costing** methods are used to assign these costs to products.
- Moreover, under operation costing, conversion costs are applied to products using a **predetermined application rate**. This predetermined rate is based on budgeted conversion costs.

Example

- For example, a company manufactures **two grades** of products, Product- Deluxe and Product- Regular. Both the products pass through a similar production process but require **different quality and quantities** of raw materials.
- The cost of raw material is accumulated on the basis of job or batches or units of two variants of products. But the costs for the conversion activities need not to be identified with the product variants as both the Products requires similar activities for conversion.
- Hence, conversion activity costs are accumulated on the basis of departments or processes only. Example of industries are **ready made garments, Shoe making, jewelry etc.**