

E18-19 Computing EUP, assigning cost, no beginning WIP or cost transferred in

Learning Objectives 2, 3

1. Total EUP for CC 7,050

Ceramic Painting prepares and packages paint products. Ceramic Painting has two departments: Blending and Packaging. Direct materials are added at the beginning of the blending process (dyes) and at the end of the packaging process (cans). Conversion costs are added evenly throughout each process. Data from the month of May for the Blending Department are as follows:

| Gallons | |
|--|-----------------|
| Beginning Work-in-Process Inventory | 0 gallons |
| Started in production | 9,500 gallons |
| Completed and transferred out to Packaging in May | 6,000 gallons |
| Ending Work-in-Process Inventory (30% of the way through the blending process) | 3,500 gallons |
| Costs | |
| Beginning Work-in-Process Inventory | \$ 0 |
| Costs added during May: | |
| Direct materials | 5,700 |
| Direct labor | 2,085 |
| Manufacturing overhead allocated | 2,004 |
| Total costs added during May | <u>\$ 9,789</u> |

Requirements

1. Compute the Blending Department's equivalent units of production for direct materials and for conversion costs.
2. Compute the total costs of the units (gallons)
 - a. Completed and transferred out to the Packaging Department.
 - b. In the Blending Department ending Work-in-Process Inventory.

SOLUTION

Requirement 1

| | | | |
|---------------------------------|--------------------|---|--------------------------------|
| Completed units: | 6,000 units × 100% | = | 6,000 EUP for direct materials |
| In process units: | 3,500 units × 100% | = | 3,500 EUP for direct materials |
| Total EUP for direct materials: | | = | 9,500 EUP for direct materials |
| Completed units: | 6,000 units × 100% | = | 6,000 EUP for conversion costs |
| In process units: | 3,500 units × 30% | = | 1,050 EUP for conversion costs |
| Total EUP for conversion costs: | | = | 7,050 EUP for conversion costs |

Requirement 2

$$\begin{aligned} \text{Cost per EUP for direct materials} &= \frac{\text{Total direct materials costs}}{\text{Equivalent units of production for direct materials}} \\ &= \frac{\$5,700}{9,500 \text{ EUP}} \end{aligned}$$

$$\begin{aligned}
 &= \$0.60 \text{ per EUP} \\
 \text{Cost per EUP for conversion costs} &= \frac{\text{Total conversion costs}}{\text{Equivalent units of production for conversion costs}} \\
 &= \frac{\$2,085 + \$2,004}{7,050 \text{ EUP}} \\
 &= \$0.58 \text{ per EUP}
 \end{aligned}$$

Direct Materials:

| | | | | | |
|------------|-----------|---|-----------------|---|-----------------|
| Completed | 6,000 EUP | × | \$ 0.60 per EUP | = | \$ 3,600 |
| In Process | 3,500 EUP | × | \$ 0.60 per EUP | = | 2,100 |
| Total | | | | | <u>\$ 5,700</u> |

Conversion Costs:

| | | | | | |
|------------|-----------|---|-----------------|---|-----------------|
| Completed | 6,000 EUP | × | \$ 0.58 per EUP | = | \$ 3,480 |
| In Process | 1,050 EUP | × | \$ 0.58 per EUP | = | 609 |
| Total | | | | | <u>\$ 4,089</u> |

a.

| | | | | |
|-------------------------------|---|------------------|---|------------------|
| Completed and Transferred Out | = | Direct Materials | + | Conversion Costs |
| | = | \$3,600 | + | \$3,480 |
| | = | \$7,080 | | |

b.

| | | | | |
|---------------------------|---|------------------|---|------------------|
| Work-in-Process Inventory | = | Direct Materials | + | Conversion Costs |
| | = | \$2,100 | + | \$ 609 |
| | = | \$2,709 | | |

Note: Exercise E18-19 must be completed before attempting Exercise E18-20.

E18-20 Preparing journal entries, posting to T-accounts, making decisions

Learning Objectives 4, 5

2. WIP Balance \$2,709

Refer to your answers from Exercise E18-19.

Requirements

1. Prepare the journal entries to record the assignment of direct materials and direct labor and the allocation of manufacturing overhead to the Blending Department. Also, prepare the journal entry to record the costs of the gallons completed and transferred out to the Packaging Department.
2. Post the journal entries to the Work-in-Process Inventory—Blending T-account. What is the ending balance?
3. What is the average cost per gallon transferred out of the Blending Department into the Packaging Department? Why would the company managers want to know this cost?

SOLUTION

Requirement 1

| Date | Accounts and Explanation | Debit | Credit |
|--------|---|-------|--------|
| May 31 | Work-in-Process Inventory—Blending Raw Materials Inventory <i>Direct materials assigned to WIP.</i> | 5,700 | 5,700 |
| | Work-in-Process Inventory—Blending Wages Payable <i>Direct labor assigned to WIP.</i> | 2,085 | 2,085 |
| | Work-in-Process Inventory—Blending Manufacturing Overhead <i>Overhead allocated to WIP.</i> | 2,004 | 2,004 |
| | Work-in-Process Inventory—Packaging Work-in-Process Inventory—Blending <i>Transfer costs assigned to units transferred.</i> | 7,080 | 7,080 |

Requirement 2

Work-in-Process—Blending

| | | | |
|------------------------|-------|-------|--------------------------|
| Balance, May 1 | 0 | 7,080 | Transferred to Packaging |
| Direct Materials | 5,700 | | |
| Direct Labor | 2,085 | | |
| Manufacturing Overhead | 2,004 | | |
| Balance, May 31 | 2,709 | | |

Requirement 3

| | | | | |
|-----------------|---|-------------------|---|-------------------------------------|
| Cost per gallon | = | Total Costs | / | Units Completed and Transferred Out |
| | = | \$7,080 | / | 6,000 gallons |
| | = | \$1.18 per gallon | | |

The managers would compare the average cost per gallon against their budgeted costs to determine whether the costs of the blending process remain *under control*. If budgeted costs are *higher* than the actual average cost per gallon, then the managers have done a good job controlling costs. In contrast, if the budgeted costs are *lower* than the actual average cost per gallon, managers will investigate the reason for the higher-than-expected costs in an effort to regain control over costs.

Ceramic Painting also uses the cost per gallon for external financial reporting—specifically to calculate the Cost of Goods Sold on the *Income Statement* and ending inventory balances for the Work-in-Process Inventory and Finished Goods Inventory accounts on the *Balance Sheet*.