

**Problem 4-21** (45 minutes)

## Weighted-Average Method

## 1. Equivalent Units of Production

	<i>Materials</i>	<i>Conversion</i>
Transferred to next department* .....	380,000	380,000
Ending work in process:		
Materials: 40,000 units × 75% complete .....	<u>30,000</u>	
Conversion: 40,000 units × 25% complete .....		<u>10,000</u>
Equivalent units of production .....	<u>410,000</u>	<u>390,000</u>

\*Units transferred to the next department = Units in beginning work in process + Units started into production – Units in ending work in process = 70,000 + 350,000 – 40,000 = 380,000

## 2. Cost per Equivalent Unit

	<i>Materials</i>	<i>Conversion</i>
Cost of beginning work in process .....	\$ 86,000	\$ 36,000
Cost added during the period .....	<u>447,000</u>	<u>198,000</u>
Total cost (a) .....	\$533,000	\$234,000
Equivalent units of production (b) .....	410,000	390,000
Cost per equivalent unit, (a) ÷ (b) .....	\$1.30	\$0.60

## 3. Cost of Ending Work in Process Inventory and Units Transferred Out

	<i>Materials</i>	<i>Conversion</i>	<i>Total</i>
Ending work in process inventory:			
Equivalent units of production (materials: 40,000 units × 75% complete; conversion: 40,000 units × 25% complete) .....	30,000	10,000	
Cost per equivalent unit .....	\$1.30	\$0.60	
Cost of ending work in process inventory .....	\$39,000	\$6,000	\$45,000
Units completed and transferred out:			
Units transferred to the next department .....	380,000	380,000	
Cost per equivalent unit .....	\$1.30	\$0.60	
Cost of units completed and transferred out .....	\$494,000	\$228,000	\$722,000

### Problem 4-21 (continued)

#### 4. Cost Reconciliation

Costs to be accounted for:

Cost of beginning work in process inventory (\$86,000 + \$36,000).....	\$122,000
Costs added to production during the period (\$447,000 + \$198,000) .....	<u>645,000</u>
Total cost to be accounted for.....	<u>\$767,000</u>

Costs accounted for as follows:

Cost of ending work in process inventory .....	\$ 45,000
Cost of units completed and transferred out ..	<u>722,000</u>
Total cost accounted for .....	<u>\$767,000</u>

**Problem 4-22** (Appendix 4A) (45 minutes)

## FIFO Method

## 1. Equivalent Units of Production

	<i>Materials</i>	<i>Conversion</i>
To complete beginning work in process:		
Materials: 60,000 units $\times$ (100% – 60%).....	24,000	
Conversion: 60,000 units $\times$ (100% – 30%)...		42,000
Units started and completed during the period (510,000 units started – 70,000 units in ending inventory) .....	440,000	440,000
Ending work in process:		
Materials: 70,000 units $\times$ 80% complete .....	<u>56,000</u>	
Conversion: 70,000 units $\times$ 40% complete ....		<u>28,000</u>
Equivalent units of production .....	<u>520,000</u>	<u>510,000</u>

## 2. Cost per Equivalent Unit

	<i>Materials</i>	<i>Conversion</i>
Cost added during the period (a).....	\$468,000	\$357,000
Equivalent units of production (b).....	520,000	510,000
Cost per equivalent unit (a) $\div$ (b).....	\$0.90	\$0.70

## 3. See the next page.

## 4. Cost Reconciliation

Costs to be accounted for:

Cost of beginning work in process inventory (\$27,000 + \$13,000) .....	\$ 40,000
Costs added to production during the period (\$468,000 + \$357,000) .....	<u>825,000</u>
Total cost to be accounted for .....	<u>\$865,000</u>

Costs accounted for as follows:

Cost of ending work in process inventory .....	\$ 70,000
Costs of units transferred out .....	<u>795,000</u>
Total cost accounted for .....	<u>\$865,000</u>

**Problem 4-22** (continued)

## 3. Costs of Ending Work in Process Inventory and Units Transferred Out

	<i>Materials</i>	<i>Conversion</i>	<i>Total</i>
Ending work in process inventory:			
Equivalent units of production .....	56,000	28,000	
Cost per equivalent unit .....	\$0.90	\$0.70	
Cost of ending work in process inventory .....	\$50,400	\$19,600	<u>\$70,000</u>
Units transferred out:			
Cost in beginning work in process inventory .....	\$27,000	\$13,000	\$40,000
Cost to complete the units in beginning work in process inventory:			
Equivalent units of production required to complete the			
beginning inventory .....	24,000	42,000	
Cost per equivalent unit .....	\$0.90	\$0.70	
Cost to complete the units in beginning inventory .....	\$21,600	\$29,400	\$51,000
Cost of units started and completed this period:			
Units started and completed this period .....	440,000	440,000	
Cost per equivalent unit .....	\$0.90	\$0.70	
Cost of units started and completed this period .....	\$396,000	\$308,000	<u>\$704,000</u>
Cost of units transferred out .....			<u>\$795,000</u>

**Case 4-30** (45 minutes)

## Weighted-Average Method

1. The revised computations follow:

## Equivalent Units of Production

	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>
Transferred to next department.....	100,000	100,000	100,000
Ending work in process:			
Transferred in: 5,000 units × 100% complete.	<u>5,000</u>		
Materials: 5,000 units × 0% complete.....		<u>0</u>	
Conversion: 5,000 units × <sup>2</sup> / <sub>5</sub> complete .....			<u>2,000</u>
Equivalent units of production.....	<u>105,000</u>	<u>100,000</u>	<u>102,000</u>

	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>
Cost of beginning work in process .....	\$ 8,820	\$ 3,400	\$ 10,200
Cost added during the period.....	<u>81,480</u>	<u>27,600</u>	<u>96,900</u>
Total cost (a) .....	<u>\$90,300</u>	<u>\$31,000</u>	<u>\$107,100</u>
Equivalent units of production (b) .....	105,000	100,000	102,000
Cost per equivalent unit, (a) ÷ (b) .....	\$0.86	\$0.31	\$1.05

**Case 4-30** (continued)

	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>	<i>Total</i>
Ending work in process inventory:				
Equivalent units of production (see above) ..	5,000	0	2,000	
Cost per equivalent unit .....	\$0.86	\$0.31	\$1.05	
Cost of ending work in process inventory ....	\$4,300	\$0	\$2,100	<u>\$6,400</u>
Units completed and transferred out:				
Units transferred to the next department.....	100,000	100,000	100,000	
Cost per equivalent unit .....	\$0.86	\$0.31	\$1.05	
Cost of units completed and transferred out	\$86,000	\$31,000	\$105,000	<u>\$222,000</u>

2. The unit cost computed above is \$2.22 (= \$0.86 + \$0.31 + \$1.05) versus \$2.284 on the original report. The unit cost on the report prepared by the accountant is high because none of the cost incurred during the month was assigned to the units in the ending work in process inventory.

**Case 4-31** (Appendix 4A) (60 minutes)

## FIFO Method

1.

	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>
To complete beginning work in process:			
Transferred in: 8,000 units × 0% .....	0		
Materials: 8,000 units × 0% .....		0	
Conversion: 8,000 units × (1 – 7/8).....			1,000
Units completed during the period (100,000 units started – 8,000 units in beginning inventory) .....	92,000	92,000	92,000
Ending work in process:			
Transferred in: 5,000 units x 100% complete	<u>5,000</u>		
Materials: 5,000 units × 0% complete .....		<u>0</u>	
Conversion: 5,000 units × 2/5 complete .....			<u>2,000</u>
Equivalent units of production .....	<u>97,000</u>	<u>92,000</u>	<u>95,000</u>
	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>
Cost added during the period (a).....	\$81,480	\$27,600	\$96,900
Equivalent units of production (b).....	97,000	92,000	95,000
Cost per equivalent unit (a) ÷ (b).....	\$0.84	\$0.30	\$1.02

**Case 4-31** (continued)

	<i>Transferred In</i>	<i>Materials</i>	<i>Conversion</i>	<i>Total</i>
Ending work in process inventory:				
Equivalent units of production.....	5,000	0	2,000	
Cost per equivalent unit.....	\$0.84	\$0.30	\$1.02	
Cost of ending work in process inventory.....	\$4,200	\$0	\$2,040	<u>\$6,240</u>
Units transferred out:				
Cost in beginning work in process inventory .....	\$8,820	\$3,400	\$10,200	\$22,420
Cost to complete units in beginning work in process inventory:				
Equivalent units of production required to complete the beginning inventory (see above) .....	0	0	1,000	
Cost per equivalent unit .....	\$0.84	\$0.30	\$1.02	
Cost to complete units in beginning inventory.....	\$0	\$0	\$1,020	\$1,020
Cost of units started and completed this period:				
Units started and completed this period .....	92,000	92,000	92,000	
Cost per equivalent unit .....	\$0.84	\$0.30	\$1.02	
Cost of units started and completed this period .....	\$77,280	\$27,600	\$93,840	<u>\$198,720</u>
Cost of units transferred out .....				<u>\$222,160</u>

2. The effects of the cost-cutting will tend to show up more under the FIFO method. The reason is that the FIFO method keeps the costs of the current period separate from the costs of the prior period. Thus, under the FIFO method, the company will be able to compare unit costs of the current period to those of the prior period to see how effective the cost-cutting program has been. Under the weighted-average method, however, costs carried over from the prior period are averaged in with costs of the current period, which will tend to mask somewhat the effects of the cost-cutting effort.