EXERCISE 4–12 Cost Assignment; Cost Reconciliation—Weighted-Average Method [LO4–2, LO4–3]

Superior Micro Products uses the weighted-average method in its process costing system. During January, the Delta Assembly Department completed its processing of 25,000 units and transferred them to the next department. The cost of beginning inventory and the costs added during January amounted to $599,780 in total. The ending inventory in January consisted of 3,000 units, which were 80% complete with respect to materials and 60% complete with respect to labor and overhead. The costs per equivalent unit for the month were as follows:

	Materials	Labor	Overhead
Cost per equivalent unit	$12.50	$3.20	$6.40

Required:

1. Compute the equivalent units of materials, labor, and overhead in the ending inventory for the month.
2. Compute the cost of ending inventory and of the units transferred to the next department for January.
3. Prepare a cost reconciliation for January. (Note: You will not be able to break the cost to be accounted for into the cost of beginning inventory and costs added during the month.)

Problems

connect ACCOUNTING

All applicable problems are available with McGraw-Hill's *Connect*® *Accounting*.

PROBLEM 4–13 Comprehensive Problem; Second Production Department—Weighted-Average Method [LO4–2, LO4–3, LO4–4, LO4–5]

Old Country Links Inc. produces sausages in three production departments—Mixing, Casing and Curing, and Packaging. In the Mixing Department, meats are prepared and ground and then mixed with spices. The spiced meat mixture is then transferred to the Casing and Curing Department, where the mixture is force-fed into casings and then hung and cured in climate-controlled smoking chambers. In the Packaging Department, the cured sausages are sorted, packed, and labeled. The company uses the weighted-average method in its process costing system. Data for September for the Casing and Curing Department follow:

		Percent Completed		
	Units	Mixing	Materials	Conversion
Work in process inventory, September 1	1	100%	90%	80%
Work in process inventory, September 30	1	100%	80%	70%

	Mixing	Materials	Conversion
Work in process inventory, September 1	$1,670	$90	$605
Cost added during September	$81,460	$6,006	$42,490

Mixing cost represents the costs of the spiced meat mixture transferred in from the Mixing Department. The spiced meat mixture is processed in the Casing and Curing Department in batches; each unit in the above table is a batch and one batch of spiced meat mixture produces a set amount of sausages that are passed on to the Packaging Department. During September, 50 batches (i.e., units) were completed and transferred to the Packaging Department.

Required:

1. Determine the equivalent units for September for mixing, materials, and conversion. Do not round off your computations.
2. Compute the costs per equivalent unit for September for mixing, materials, and conversion.

3. Determine the total cost of ending work in process inventory and the total cost of units transferred to the Packaging Department in September.
4. Prepare a cost reconciliation report for the Casing and Curing Department for September.

PROBLEM 4–14 Analysis of Work in Process T-account—Weighted-Average Method [LO4–1, LO4–2, LO4–3, LO4–4]

Weston Products manufactures an industrial cleaning compound that goes through three processing departments—Grinding, Mixing, and Cooking. All raw materials are introduced at the start of work in the Grinding Department. The Work in Process T-account for the Grinding Department for May is given below:

Work in Process—Grinding Department

Inventory, May 1	21,800	Completed and transferred to the Mixing Department	?
Materials	133,400		
Conversion	225,500		
Inventory, May 31	?		

The May 1 work in process inventory consisted of 18,000 pounds with $14,600 in materials cost and $7,200 in conversion cost. The May 1 work in process inventory was 100% complete with respect to materials and 30% complete with respect to conversion. During May, 167,000 pounds were started into production. The May 31 inventory consisted of 15,000 pounds that were 100% complete with respect to materials and 60% complete with respect to conversion. The company uses the weighted-average method to account for units and costs.

Required:

1. Determine the equivalent units of production for May.
2. Determine the costs per equivalent unit for May.
3. Determine the cost of the units completed and transferred to the Mixing Department during May.

PROBLEM 4–15 Comprehensive Problem—Weighted-Average Method [LO4–2, LO4–3, LO4–4, LO4–5]

Sunspot Beverages, Ltd., of Fiji makes blended tropical fruit drinks in two stages. Fruit juices are extracted from fresh fruits and then blended in the Blending Department. The blended juices are then bottled and packed for shipping in the Bottling Department. The following information pertains to the operations of the Blending Department for June.

		Percent Completed	
	Units	Materials	Conversion
Work in process, beginning	20,000	100%	75%
Started into production	180,000		
Completed and transferred out	160,000		
Work in process, ending	40,000	100%	25%

	Materials	Conversion
Work in process, beginning	$25,200	$24,800
Cost added during June	$334,800	$238,700

Required:

Assume that the company uses the weighted-average method.

1. Determine the equivalent units for June for the Blending Department.
2. Compute the costs per equivalent unit for the Blending Department.
3. Determine the total cost of ending work in process inventory and the total cost of units transferred to the Bottling Department.
4. Prepare a cost reconciliation report for the Blending Department for June.

PROBLEM 4-16 Comprehensive Problem—Weighted-Average Method [Learning Objectives 2, 3, 4]

Builder Products, Inc., manufactures a caulking compound that goes through three processing stages prior to completion. Information on work in the first department, Cooking, is given below for May:

Production data:	
Pounds in process, May 1; materials 100% complete; conversion 60% complete	10,000
Pounds started into production during May	100,000
Pounds completed and transferred out	?
Pounds in process, May 31; materials 60% complete; conversion 20% complete	15,000
Cost data:	
Work in process inventory, May 1:	
Materials cost	$1,500
Conversion cost	$7,200
Cost added during May:	
Materials cost	$154,500
Conversion cost	$90,800

The company uses the weighted-average method.

Required:

1. Compute the equivalent units of production.
2. Compute the costs per equivalent unit for the month.
3. Determine the cost of ending work in process inventory and of the units transferred out to the next department.
4. Prepare a cost reconciliation report for the month.

PROBLEM 4-17 Cost Flows [Learning Objective 1]

Lubricants, Inc., produces a special kind of grease that is widely used by race car drivers. The grease is produced in two processing departments: Refining and Blending. Raw materials are introduced at various points in the Refining Department.

The following incomplete Work in Process account is available for the Refining Department for March:

Work in Process—Refining Department

March 1 balance	38,000	Completed and transferred to Blending	?
Materials	495,000		
Direct labor	72,000		
Overhead	181,000		
March 31 balance	?		

The March 1 work in process inventory in the Refining Department consists of the following elements: materials, $25,000; direct labor, $4,000; and overhead, $9,000.

Costs incurred during March in the Blending Department were: materials used, $115,000; direct labor, $18,000; and overhead cost applied to production, $42,000.

Required:

1. Prepare journal entries to record the costs incurred in both the Refining Department and Blending Department during March. Key your entries to the items (a) through (g) below.
   a. Raw materials were issued for use in production.
   b. Direct labor costs were incurred.
   c. Manufacturing overhead costs for the entire factory were incurred, $225,000. (Credit Accounts Payable.)
   d. Manufacturing overhead cost was applied to production using a predetermined overhead rate.
   e. Units that were complete with respect to processing in the Refining Department were transferred to the Blending Department, $740,000.

Garrison

Process costing

Chap-4

P 4-13 Weighted Average Method

1. Computation of equivalent units in ending inventory :

	Mixing	Materials	Conversion
Units transferred to the next dept.	50	50	50
Ending WIP			
Mixing 1 x 100%	1		
Material 1 x 80%		0.8	
Conversion 1 x 70%			0.7
	50	50.8	50.7

2. Cost per equivalent unit:

	Mixing	Material	Conversion
Cost of op. WIP	1670	90	605
Cost added during the ~~process~~ period	81460	6006	42490
Total cost @	83130	6096	43095
Equivalent units of prodn	51	50.8	50.7
Cost per equivalent unit	1630	120	850

3. Cost of ending WIP inventory & units transferred out:

	Mixing	Material	Conversion	Total
Ending WIP				
Equivalent units of prodn	1.0	0.8	0.7	
Cost per equivalent unit	1630	120	850	
Cost of ending WIP	1630	96	595	2321

~~Cost completed & transferred out~~

	Mixing	Material Conversion		Total
Units completed & transferred out:				
Units transferred to next dept	50	50	50	
Cost per equivalent unit	1630	120	850	
Cost of units transferred out	81500	6000	42500	130000

4. Cost reconcilation

Cost to be accounted for

Cost of op. WIP (1670 + 90 + 605)	2365
Cost added to prodn during the period (81460 + 6006 + 42490)	129956
Total cost to be accounted for	132321

Cost accounted for

Cost of ending WIP (1610 + 96 + 595)	2321
Cost of units transferred out	130000
Total cost accounted for	132321

P-4-15 Weighted Average Method

1. Equivalent units of production

	Material	Conversion
Transferred to next dept.	160000	160000
Ending WIP	40000	
Material 40000 × 100%		
Conversion 40000 × 25%		10000
	200000	170000

2. Cost per equivalent unit

	Material Tk	Conversion Tk
Cost of Op. WIP	25200	24800
Cost added during the period	334800	238700
Total cost	360000	263500
Equivalent units	200000	170000
Cost per equivalent unit	1.80	1.55

3.

	Material	Conversion	Total
Ending WIP inventory			
Equivalent units	40 000	10000	
Cost per equivalent unit	1.80	1.55	
Cost of ending WIP	72000	15500	87500
Units completed and transferred out:			
Units transferred to next dept	160000	160000	
Cost per equivalent unit	1.80	1.55	
Cost of units completed & transferred out	288 000	248000	536000

4.

4. Cost reconciliation

Cost to be accounted for	
Cost of Op. WIP (25200 + 24800)	50000
Cost added to production during the period (334800 + 238700)	573500
	623500
Cost accounted for	
Cost of ending WIP	87500
Cost of units completed & transferred out	536000
	623500

P 9-16

1. Equivalent units of production

	Material	Conversion
Transferred to the next dept *	95000	95000
Ending WIP		
Material 15000 × 60%	9000	
Conversion 15000 × 20%		3000
	104000	98000

* Units transferred to next dept.

= Units of Op. WIP + Units started into production − Units in Ending WIP

= 10000 + 100000 − 15000

= 95000

2. Cost per equivalent unit

	Material	Conversion
Cost of Op. WIP	1500	7200
Cost added during the period	154500	90800
Total cost	156000	98000
Equivalent unit	104000	98000
Cost per equivalent unit	1.5	1.00

3. Cost of Ending WIP inventory & units transferred out:

	Material	Conversion	Total
Ending WIP			
Equivalent units	9000	3000	
Cost per equivalent units	1.50	1.00	
Cost of ending WIP	13500	3000	16500
Units completed and transferred out:			
Units transferred to the next dept.	9500	9500	
cost per equivalent unit	1.50	1.00	
Cost of units completed & transferred out	142500	95000	237500

4. Cost Reconciliation

Cost to be accounted for	
Cost of Op. WIP (1500 + 7200)	2700
Cost added to prodn during the period (151500 + 30800)	215300
Total cost to be accounted for	251000
Cost accounted for	
Cost of ending WIP	16500
Cost of units completed & transferred out	237500
	254000