

Lectures Note

COST ACCOUNTING

Chapter 8 cont. Process Costing: Lost, Defective, and Spoiled Units

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Edisi 1 2024

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Chapter VIII (continuing)

Process Costing: Lost, Defective, and Spoiled Units

After studying this chapter, you should be able to:

- 1. Know the difference between lost, defective and spoiled units*
- 2. Determine the method of process costing systems*
- 3. Explain the step to make production report*
- 4. Prepare cost of production report of each method*
- 5. Journalize the transactions needed*

Study objectives of this chapter will give you the explanation of the step to prepare cost of production report for process costing method

A. Lost Units

Lost units are the units that evaporate, crystallize, and shrink in the production process because of the material natures such as gas.

Units might be lost in the beginning of process, in the mid of the process or in the end of process. For simplicity, units lost in the beginning and the end of process will be discussed.

The impact of lost units on product costing

1. Units lost in the beginning of process:
 - a. It is assumed that lost unit have not absorbed the manufacturing cost yet
 - b. Lost units are not computed in the equivalent units
 - c. Cost of lost unit are not computed
 - d. Lost units in the beginning of process on the next department will result in the adjustment of cost per unit.

2. Lost unit in the end of process:

- a. Lost units have absorbed the manufacturing cost
- b. Lost units are computed in the equivalent units
- c. Cost of lost units are computed
- d. Since costs of lost units are assigned to the units completed, cost per unit of unit completed will be higher.

B. Defective Units

Defective units are units that do not meet the specification or quality standard and can still economically be corrected.

The treatment of rework cost:

- a. If the defective units are normal in nature, costs of correction will add the cost of production
- b. If the defective units are abnormal in nature, cost of correction will be treated as *loss on defective units*.

C. Spoiled Units

Spoiled units are units that do not meet the specification or quality standard and can not economically be corrected.

Spoiled units are known in the end of process, therefore they are computed in the equivalent units. Costs of spoiled units are treated as loss on spoiled units.

The treatment of spoiled units:

- 1. Spoiled units are not saleable
 - a. Normal → costs of spoiled units are assigned to units completed
 - b. Abnormal → costs of spoiled units are treated as loss on spoiled units

2. Spoiled units are saleable

- a. Normal → sales revenue will be treated as the deduction of cost of units completed, manufacturing costs, overhead costs or as other income.
- b. Abnormal → sales revenue will be treated as the deduction of loss on spoiled units.

Illustration – Two Department

Data obtained from Morrowco Corporation for January 2023 are as follows:

	Assembly Dept.	Finishing Dept.
Beginning WIP		
- 100%RM, 40%CC	2,000 units	
- 100%RM, 50%CC		1,000 units
Ending WIP		
- 100%RM, 60%CC	1,500 units	
- 100%RM, 30%CC		500 units
Units put in the process	5,000 units	?
Lost Units:		
- End of process	100 units	
- Beginning of process		200 units
Defective units (normal)	400 units	
	Assembly Dept.	Finishing Dept.
Spoiled units (normal)	300 units	100 units (abnormal)
Cost of Beginning WIP		
Costs from Assembly Dept.		\$ 200,000
RM	\$100,000	\$ 150,000
CC	\$200,000	\$ 50,000
Current Manufacturing Costs:		
RM	\$700,000	\$1,000,000
CC	\$800,000	\$ 600,000

RM	\$ 75,000
CC	\$125,000

- Prepare costs of production report for both department using FIFO method
- Journal entries needed

<u>Quantity Schedule (Step 1)</u>		
Beginning WIP (100% RM, 40% CC)	2,000	
Units started in process	<u>5,000</u>	<u>7,000</u>
Units completed (good)	4,700 ¹⁾	
Units completed (normal defective)	<u>400</u>	
Units transferred to Finishing Dept.	5,100	
Lost units (end of process)	100	
Spoiled units (normal)	300	
Ending WIP (100% RM, 60% CC)	<u>1,500</u>	<u>7,000</u>

$$\begin{aligned}\text{EU RM} &= 5,100 + 100 + 300 + 1,500 (100\%) - 2,000 (100\%) = 5,000 \\ \text{EU CC} &= 5,100 + 100 + 300 + 1,500 (60\%) - 2,000 (40\%) = 5,600\end{aligned}$$

Beginning WIP Costs	
RM	\$ 100,000
CC	<u>\$ 200,000</u>
Total	\$ 300,000

Current Manufacturing Cost		EU	Cost/unit
RM	\$ 775,000	5,000	\$155.0000
CC	<u>\$ 925,000</u>	5,600	<u>165.1786</u>
Total costs	\$2,000,000		<u>\$320.1786</u>

Cost Accounted for (Step 4)

Costs of units completed

From Beginning WIP

- Cost of beginning WIP \$300,000.00

- Additional cost CC 2,000 (60%) x \$165.1786 198,214.32

From current period 3,100 x \$320.1786 992,553.66

Cost of lost unit 100 x \$320.1786 32,017.86

Cost of spoiled units 300 x \$320.1786 96,053.58

Costs of units completed 5,100 units @ 317.42 \$1,618,839.42

Costs of ending WIP (1,500 units)

RM 1,500 (100%) x \$155.0000 \$232,500.00

CC 1,500 (60%) x \$165.1786 148,660.74

381,160.74

Total costs accounted for \$2,000,000.00*

*) Rounded 0.16

Morrowco Corporation
Cost of Production Report – FIFO Method
Finishing Department
January 2023

Quantity Schedule (Step 1)

Beginning WIP (100% RM, 50% CC)	1,000	
Units received from Assembly Dept.	<u>5,100</u>	<u>6,100</u>
Units completed and transferred to warehouse	5,300 ¹⁾	
Lost units (beginning of process)	200	
Spoiled units (abnormal)	100	
Ending WIP (100% RM, 30% CC)	<u>500</u>	<u>6,100</u>

Equivalent Unit (Step 2)

EU RM = 5,300 + 100 + 500 (100%) – 1,000 (100%)= 4,900
EU CC = 5,300 + 100 + 500 (30%) – 1,000 (50%) = 5,050

Cost to Account for (Step 3)

Beginning WIP Costs			
Costs from Assembly Dept.	\$ 200,000		
RM	\$ 150,000		
CC	<u>\$ 50,000</u>		
Total	\$ 400,000		
Current Manufacturing Cost		EU	Cost/unit
Costs from Assembly Dept.	\$1,618,839.42	5,100	\$317.4195
Lost units	--	<u>(200)</u>	
Adjusted costs	\$1,618,839.42	4,900	\$330.3754
RM	\$1,000,000.00	4,900	\$204.0816
CC	<u>\$ 600,000.00</u>	5,050	<u>118.8119</u>
Total costs	\$3,618,839.42		\$653.2689

Cost Accounted for (Step 4)

Costs of units completed

From Beginning WIP

- Cost of beginning WIP \$400,000.00

- Additional cost CC 1,000 (50%) x \$118.8119 59,405.95

From current period 4,300 x \$653.2689 2,809,056.27

Costs of units completed 5,300 units @ \$616.69 \$3,268,462.22

Cost of spoiled units 100 x \$653.2689 65,326.89

Costs of ending WIP (500 units)

Cost from Ass Dept 500 x \$330.3754 \$165,187.70

RM 500 (100%) x \$204.0816 102,040.80

CC 500 (30%) x \$118.8119 17,821.785

285,050.285

Total costs accounted for \$3,618,839.42*

*) Rounded 0.025

Journal Entries

(1) To record the manufacturing Cost of Assembly Dept.

WIP Inventory - Assembly Dept.	\$1,500,000
Raw Material Inventory	\$ 700,000
Conversion Costs	800,000

(2) To record the rework cost

WIP Inventory - Assembly Dept.	200,000
Raw Material Inventory	75,000
Conversion Costs	125,000

(3) To record the units completed at the Assembly Dept

WIP Inventory - Finishing Dept.	1,618,839.42
WIP Inventory - Assembly Dept.	1,618,839.42

(4) *To record the manufacturing cost of Finishing Dept.*

WIP Inventory - Finishing Dept.	1,600,000	
Raw Material Inventory		1,000,000
Conversion Costs		600,000

(5) *To record the units completed at the Finishing Dept.*

Finished Good Inventory	3,268,462.22	
WIP Inventory - Finishing Dept.		3,268,462.22

(6) *To record the spoiled units at the Finishing Dept.*

Loss on Spoiled Units	65,326.89	
WIP Inventory - Finishing Dept.		65,326.89

D. Additional Materials in Subsequent Departments

Two possible effects on units and costs:

1. The additional materials merely increase the units cost since these materials become a part of the product manufactured and do not increase the number of final units. Adding button in finishing department of shirt manufacturing does not increase the number of shirt.
2. The added materials increase the number of units and also cause a change in unit cost. In processing a chemical, water is often added to the mixture causing an increase in the number of units and a spreading of cost over greater number of units.
 - a. Unit cost from previous department is adjusted so unit cost become lower
 - b. Additional material will increase unit cost in the next department.

Based on the illustration Morrowco Corp. above, suppose that the additional materials in Finishing Department add the units produced for 500 units. The effects of the additional units on Finishing Department are as follows:

Morrowco Corporation
Cost of Production Report – FIFO Method
Finishing Department
January 2023

Quantity Schedule (Step 1)

Beginning WIP (100% RM, 50% CC)	1,000	
Additional units because of additional materials	500	
Units received from Assembly Dept.	<u>5,100</u>	<u>6,600</u>
Units completed and transferred to warehouse	5,800 ¹⁾	
Lost units (beginning of process)	200	
Spoiled units (abnormal)	100	
Ending WIP (100% RM, 30% CC)	<u>500</u>	<u>6,600</u>

Equivalent Unit (Step 2)

$$\text{EU RM} = 5,800 + 100 + 500 (100\%) - 1,000 (100\%) = 5,400$$

$$\text{EU CC} = 5,800 + 100 + 500 (30\%) - 1,000 (50\%) = 5,550$$

Cost to Account for (Step 3)

Beginning WIP Costs

Costs from Assembly Dept. \$ 200,000

RM \$ 150,000

CC \$ 50,000

Total \$ 400,000

Current Manufacturing Cost EU Cost/unit

Costs from Assembly Dept. \$1,618,839.42 5,100 \$317.4195

Lost units -- (200)

Additional Units: 500

Adjusted costs \$1,618,839.42 5,400 \$299.7851

RM \$1,000,000.00 5,400 185.1852

CC \$ 600,000.00 5,550 108.1081

Total costs \$3,618,839.42 \$593.0784

Cost Accounted for (Step 4)

Costs of units completed

From Beginning WIP

- Cost of beginning WIP \$400,000.00

- Additional cost CC 1,000 (50%) x \$108.1081 54,054.05

From current period 4,800 x \$593.0784 2,846,776.18

Costs of units completed 5,800 units @ \$569.11 \$3,300,830.24

Cost of spoiled units 100 x \$593.0784 59,307.84

Costs of ending WIP (500 units)

Cost from Ass Dept 500 x \$299.7851 \$149,892.50

RM 500 (100%) x \$185.1852 92,592.59

CC 500 (30%) x \$108.1081 16,216.22258,701.30

Total costs accounted for \$3,618,839.42*

*) Rounded 0.04

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