Equivalent Units

Accounting presentation created by
Rex A Schildhouse
2015-01-01
www.schildhouse.com

Equivalent Units

- Equivalent units are one of the items that accountants love to “add” things to that should not be there making it really tough.
- Word of advise – this system is a step-by-step process.
- Take one step at a time and follow the template.

Equivalent Units

- Equivalent units is required because we cannot order production to shutdown at the end of every fiscal period and clear the benches and assembly lines.
- So we created equivalent units to allow us to value work that is between one inventoriable state and another – Work-in-process or WIP.

Equivalent Units

- Here is the setup information.

1,750	Beginning WIP is 1,750 units
16,000	Started into production 16,000 units
14,750	Completed and transferred out 14,750 units
3,000	From this you know BB 1,750 + started 16,000 = 17,750 less completed and transferred out 14,750 ending WIP is 3,000 even if it does not tell you.
35%	Ending WIP is 35% complete for DM
65%	Ending WIP is 65% complete for conversion.
$1,250	Beginning WIP has $1,250 in direct materials
$4,750	Beginning WIP has $4,750 in conversion costs
$5,500	Direct materials used in the month are $5,500
$29,250	Conversion costs in the month are $29,250

Equivalent Units

- They must give you most of the information.
- With a beginning balance in WIP of 1,750 units and a started into production of 16,000 units we must account for (1,750 + 16,000) 17,750 units.

Step 1:	**Step 1:**	**Step 2:**	**Step 3:**
Units to be Accounted for:	**Flow of Physical Units:**	**DM:**	**Conversion:**
Beginning WIP in units:	1,750		
Plus units transferred in:	16,000		
Total to account for:	17,750		

Equivalent Units

- The setup information tells us that 14,750 units were completed and transferred out.
- By the rules of the game, these must be 100% complete for direct materials and conversion costs (direct labor and FOH / MOH).

Step 2:

Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- The setup information tells us that there are 3,000 units in ending WIP.
- These 3,000 units are 35% complete for direct materials (3,000 units × 35%) 1,050 units.

Step 2:

Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- The setup information tells us that there are 3,000 units in ending WIP.
- These 3,000 units are 65% complete for conversion (DL and FOH / MOH) (3,000 units × 65%) 1,950 units.

Step 2:

Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- With the equivalent units for direct materials and conversion calculated we know that we have (14,750 completed and transferred out + 3,000 WIP) 17,750 total units to account for, are repeat and verified value.

Step 2:			
Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- With the equivalent units for direct materials and conversion calculated we know that we have (14,750 completed and transferred out + 1,050 direct materials WIP) 15,800 total units to account for as direct materials equivalent units.

Step 2:

Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- With the equivalent units for direct materials and conversion calculated we know that we have (14,750 completed and transferred out + 1,950 Conversion WIP) 16,700 total units to account for as Conversion equivalent units.

Step 2:			
Units Accounted for:			
	Flow of Physical Units:	**DM:**	**Conversion:**
Units completed and transferred out:	14,750	14,750	14,750
Plus ending WIP units:	3,000	1,050	1,950
Total physical units accounted for:	17,750	15,800	16,700
DM complete	35%		
Conversion complete percentage:	65%		

Equivalent Units

- With the number of units complete we start working on dollars.
- The setup information states beginning balance WIP has $1,250 in direct materials and $4,750 in conversion costs.
- These values total to $6,000.

Step 3:	DM:	Conversion:	Total:
Beginning WIP:	$1,250	$4,750	$6,000
Plus costs added:	5,500	29,250	34,750
Total costs to account for:	$6,750	$34,000	$40,750

Equivalent Units

- The setup information tells us that $5,500 in direct materials was added to WIP.
- Therefore we need to account for ($1,250 + $5,500) $6,750 in direct materials.

Step 3:	DM:	Conversion:	Total:
Beginning WIP:	$1,250	$4,750	$6,000
Plus costs added:	5,500	29,250	34,750
Total costs to account for:	$6,750	$34,000	$40,750

Equivalent Units

- The setup information tells us that $29,250 in conversion (direct labor and FOH / MOH) was added to WIP.
- Therefore we need to account for ($4,750 + $29,250) $34,000 in conversion costs.
- Therefore we must account for ($6,750 + $34,000) $40,750.

Step 3:	DM:	Conversion:	Total:
Beginning WIP:	$1,250	$4,750	$6,000
Plus costs added:	5,500	29,250	34,750
Total costs to account for:	$6,750	$34,000	$40,750

Equivalent Units

- From Step 3, we have $6,750 in direct materials and 15,800 direct material units from Step 2.
- Therefore we have a direct material unit cost of ($6,750 ÷ 15,800) $0.43, rounded to two decimal places.

Step 4:	**DM:**	**Conversion:**
Total costs to account for:	$6,750	$34,000
Divided by total equivalent units:	15,800	16,700
Cost per equivalent unit:	$0.43	$2.04

Equivalent Units

- From Step 3, we have $34,000 in conversion costs.
- From Step 2, we have 16,700 equivalent units for conversion.
- Therefore we have a conversion unit cost of ($34,000 ÷ 16,700) $2.04, rounded to two decimal places.

Step 4:	**DM:**	**Conversion:**
Total costs to account for:	$6,750	$34,000
Divided by total equivalent units:	15,800	16,700
Cost per equivalent unit:	$0.43	$2.04

Equivalent Units

- From the setup information we know that 14,750 units were completed and transferred out.
- With Step 4 providing unit costs we can compute the value of units completed and transferred out.

Step 5:	DM:	Conversion:	Total:
Completed and transferred out:			
Equivalent units completed and transferred out from Step 2:	14,750	14,750	
Multiplied by the cost per equivalent unit from Step 4:	$0.43	$2.04	
Cost assigned to units completed and transferred out:	$6,301	$30,030	$36,331

Equivalent Units

- Extending the 14,750 equivalent units from the setup by the direct material and conversion costs per unit, $0.43 and $2.04, Step 4, we now know the total direct materials costs of $6,301 and $30,030 or a total of $36,331 for units completed and transferred out.
- All values are rounded.

Step 5:	DM:	Conversion:	Total:
Completed and transferred out:			
Equivalent units completed and transferred out from Step 2:	14,750	14,750	
Multiplied by the cost per equivalent unit from Step 4:	$0.43	$2.04	
Cost assigned to units completed and transferred out:	$6,301	$30,030	$36,331

Equivalent Units

- From Step 2 we know that equivalent units for WIP in direct materials is 1,050 and for conversion is 1,950.
- We know the unit cost to be applied from Step 4, $0.43 and $2.04 rounded to two decimal places.

Step 6:	DM:	Conversion:	Total:
Ending WIP from Step 2:	1,050	1,950	
Multiplied by the cost per equivalent unit from Step 4:	$0.43	$2.04	
Cost assigned to units in ending WIP:	$449	$3,970	$4,419
Total costs accounted for, must match Step 3:			$40,750

Equivalent Units

- Therefore we know that the ending value of WIP is $449 for direct materials and $3,970 for conversion (DL and FOH / MOH), totaling $4,419.

Step 6:	DM:	Conversion:	Total:
Ending WIP from Step 2:	1,050	1,950	
Multiplied by the cost per equivalent unit from Step 4:	$0.43	$2.04	
Cost assigned to units in ending WIP:	$449	$3,970	$4,419
Total costs accounted for, must match Step 3:			$40,750

Equivalent Units

- From Step 3 we know we need to account for $40,750.
- From Step 5 we know we had $36,331 transferred out.
- With $36,331 + $4,419 we have accounted for $40,750.

Step 6:	DM:	Conversion:	Total:
Ending WIP from Step 2:	1,050	1,950	
Multiplied by the cost per equivalent unit from Step 4:	$0.43	$2.04	
Cost assigned to units in ending WIP:	$449	$3,970	$4,419
Total costs accounted for, must match Step 3:			$40,750

Equivalent Units

- So the problem is complete by completing the template one step at a time.
- The key to solving equivalent units is a template and not being bogged down with where you are going but where you are at in the process.

Equivalent Units

The end.