

Variance – B – Material Variances

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Variance – B – Material Variances

- Variances are the difference between actual and expected (budgeted) amounts.
- Here is a memory key – Alphabetical order:
 - Actual
 - Less Standard
 - Equals Variance

$$\boxed{\text{Actual Cost}} - \boxed{\text{Standard Cost}} = \boxed{\text{Variance Amount}}$$

Variance – B – Material Variances

- There are issues of yield, which most textbooks ignore.
- Yield is a factor where, if you need to make 144 items, you may need to purchase 148 ¼” washers because some are going to testing and some will be lost in production.
- In real life accounting the cost to produce 144 items includes the cost of 148 washers even though each produced item gets only one washer.

Variance – B – Material Variances

- The same type of yield issue goes for production. If you want to meet a customer's order for 144, you may have to start 145 or 146 items as one or more may be damaged on the assembly line or one item may be removed for destructive testing.
- To maintain consistency with most textbooks, I will ignore yield issues.

Variance – B – Material Variances

- I have a Microsoft Excel template to accompany this presentation with live formulas and journal entries.
 - **variances_a_full_variance_template_2015_01_01.xlsx**
- The formulas on this template are live allowing you to change the values and see the affect.

Variance – B – Material Variances

- Here is the setup for this presentation.

Material Variances:	
Standard material cost per unit:	\$9.75
Actual material cost per unit:	\$9.95
Standard materials per manufactured unit:	14.0
Actual material used per manufactured unit:	15.0
Actual units produced:	560.00
Quantity of material purchased:	9,750
Actual material used to complete the work: (AH)	40.000

- As with all accounting processes, you cannot make up numbers, they must give you the information in one form or another.

Variance – B – Material Variances

- Material Purchase Price Variance is the Actual Purchase Cost minus the Standard Cost.
- They may give you this as a unit cost and the quantity or as the total purchase cost.
- Since the setup gives us unit cost and quantity purchased, we will work with that.

Variance – B – Direct Material

- Actual cost is (9,750 items \times \$9.95 per unit) \$97,012.50.
- The standard cost is (9,750 items \times \$9.75 per unit) \$95,062.50.
- Therefore, the Material Price Purchase Variance is (\$97,012.50 - \$95,062.50) \$1,950.

Variance – B – Material Variances

- I prefer to display this in the format of this matrix.

Material Purchase Price Variance:				
Actual Quantity Purchased:	×	Actual Material Cost per Unit:	=	Actual Cost of Purchase:
9,750.00	×	\$9.95	=	\$97,012.50
Actual Quantity Purchased:	×	Std Material Cost per Unit:	=	Standard Cost of Purchase:
9,750.00	×	\$9.75	=	\$95,062.50
The Purchase Price Variance is greater than standard, Unfavorable				\$1,950.00

Variance – B – Material Variances

- The journal entry for the purchase is shown here.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance	1,950.00	
	Accounts Payable		97,012.50
	Material purchase related variances		

- Logic is applied to the values.
- Raw Materials Inventory is debited for (9,750 units at \$9.75 each), \$95,062.50 as this is the standard cost of the items.

Variance – B – Material Variances

- This is Step 2 of the journal entry.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance	1,950.00	
	Accounts Payable		97,012.50
	Material purchase related variances		

- What we owe the vendor, Accounts Payable, is actual units \times actual cost per unit, (9,750 units at \$9.95 each), \$97,012.50.

Variance – B – Material Variances

- This is Step 3 of the journal entry.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance	1,950.00	
	Accounts Payable		97,012.50
	Material purchase related variances		

- With the requirements of Debits = Credits, until we debit the Materials Purchase Price Variance account for \$1,950.00 we do not have a balanced journal entry.

Variance – B – Material Variances

- There is another way to consider the \$1,950.00.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance	1,950.00	
	Accounts Payable		97,012.50
	Material purchase related variances		

- Actual cost exceeded standard cost, this is akin to an expense, it will be a debit.

Variance – B – Material Variances

- What would have happened if the actual purchase cost was \$9.60 with an unchanged standard cost of \$9.75?

Material Variances:	
Standard material cost per unit:	\$9.75
Actual material cost per unit:	\$9.60
Standard materials per manufactured unit:	14.0
Actual material used per manufactured unit:	15.0
Actual units produced:	560.00
Quantity of material purchased:	9,750
Actual material used to complete the work: (AH)	40,000

Variance – B – Direct Material

- Actual cost is (9,750 items \times \$9.60 per unit) \$93,600.00.
- The standard cost is (9,750 items \times \$9.75 per unit) \$95,062.50.
- Therefore, the Material Price Purchase Variance is (\$93,600.00 - \$95,062.50) **(\$1,462.50)**, a negative value.

Variance – B – Material Variances

- The debit to Raw Materials Inventory remains at $(9,750 \text{ units} \times \$9.75) \$95,062.50$.
- The credit to Accounts Payable is an absolute of $(9,750 \text{ units} \times \$9.60) \$93,600.00$.
- To balance the journal entry we need a credit of \$1,462.50 to Material Purchase Price Variance.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance		1,462.50
	Accounts Payable		93,600.00
	Material purchase related variances		

Variance – B – Material Variances

- The variance accounts, as shown, are not debit / credit sensitive. Whatever the variance works out to be is acceptable and journalized.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Raw Materials Inventory	95,062.50	
	Material Purchase Price Variance		1,462.50
	Accounts Payable		93,600.00
	Material purchase related variances		

Variance – B – Material Variances

- The second variance associated with materials is Material Efficiency Variance.
- This is, production (in textbook accounting) is supposed to make 560 units using 14 material items per unit.
- Therefore standard consumption is (560 units \times 14 items per unit) 7,840 items.
- With a standard cost this is (7,840 items \times \$9.75) \$76,440.00.

Variance – B – Material Variances

- However, records show production used (15 items per unit × 560 units) 8,400 items.
- These 8,400 items, at a standard cost of \$9.75 each have a total value of \$81,900.00.
- I like this matrix presentation for variances.

Material Efficiency Variance:				
Actual Quantity Used:	×	Standard Material Cost:	=	Actual Cost of Materials:
8,400.00	×	\$9.75	=	\$81,900.00
Std Quantity for the Effort:	×	Standard Material Cost:	=	Actual Cost of Materials:
7,840.00	×	\$9.75	=	\$76,440.00
The Material Efficiency Variance is greater than standard, Unfavorable				\$5,460.00

Variance – B – Material Variances

- The difference between actual, \$81,900.00, and standard, \$76,440.00, of \$5,460.00.
- Since the sum of Actual minus Standard is positive, the variance is unfavorable.

Variance – B – Material Variances

- The journal entry moves the materials into Work in Process at standard cost, \$76,440.00, with a debit.
- The materials are taken out of the Raw Materials Inventory at Actual Units × Standard cost, \$81,900.00.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Work in Process	76,440.00	
	Material Efficiency Variance	5,460.00	
	Raw Materials Inventory		81,900.00
	Material efficiency related variances		

Variance – B – Material Variances

- With debits equaling \$76,440.00 and credits equaling \$81,900.00, the Material Efficiency Variance is a debit of \$5,460.00 to balance the journal entry.
- A reminder, variance accounts are not debit or credit sensitive for normal balances.

Journal Entry Recognizing Only Purchase Price Variance:			
1/10/2015	Work in Process	76,440.00	
	Material Efficiency Variance	5,460.00	
	Raw Materials Inventory		81,900.00
	Material efficiency related variances		

Variance – B – Material Variances

- When textbook accounting ignores the timing issue, both these journal entries, one for the Material Purchase Price Variance and the Material Efficiency Variance recognition, the journal entry looks like this.
- All the values are the same.

1/10/2015	Work in Process	76,440.00	
	Material Purchase Price Variance		1,462.50
	Material Efficiency Variance	5,460.00	
	Raw Materials Inventory		80,437.50
	Material related variances		

Variance – B – Material Variances

- The next recommended presentation is Variances – C – Labor Variances followed by
- Variances – D – Factory / Manufacturing Overhead Variances.

Variance – B – Material Variances

The end.