

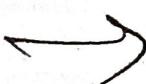
Topic - variance analysis.D.B. Sub: CMA-IIL-2 → Material Mix Variance

Before going to lecture-2, there is a correction to lecture-1 (L-1), Page-4, 2nd para, pl see - "that is why we say material price variance is sum total of two other variances i.e. material quantity variance and material price variance."

It should be "that is why we say Material Cost Variance is sum total of two other variances i.e. material quantity variance and material price variance.

Pl. make it corrected.

Now, we will proceed to second lecture-L-2 in variance analysis. In L-2 we will discuss material mix variance. Actually it is a part of material usage variance. Material usage variance has two parts - Material mix variance and material yield variance.



Sometimes a product is produced with mixture of two or three raw materials. This is called material mix. Every material has different price also. In that case simple material usage variance is not effective. we will calculate material mix variance.

Say, an example:

A product requires three types of raw materials - A, B and C in different quantities. Obviously price of those raw materials will be of different.

	<u>Q'ty (kg)</u>	<u>Per Q'ty (Rs)</u>	<u>Cost (Total)</u>
A	30000	Rs. 10	Rs. 300000
B	40000	Rs. 5	Rs. 200000
C	<u>50000</u> <u>120000</u>	Rs. 6	<u>Rs. 300000</u> <u>800000</u>

But actual quantities and price are different:

A	35000	9	<u>Rs.</u> 315000
B	42000	6	252000
C	53000	7	371000
	<u>130000</u>		<u>938000</u>

} Standard.

} Actual

Here, we calculate material Cost variance :

$$\begin{aligned}
 MCV &= \text{Total Std Mat Cost} - \text{Total Actual Material} \\
 &= R. 80000 - R. 93800 \\
 &= (-) R. 138000 \text{ i.e. Adverse.}
 \end{aligned}$$

Mat usage variance = $(\text{Std Qty} - \text{Actual Qty}) \times \text{S.R.}$

$$\begin{aligned}
 \text{Mat A} &\rightarrow (30,000 - 35,000) \times \frac{\text{Rs.}}{10} = R. 50,000 \text{ A} \\
 \text{B} &\rightarrow (40,000 - 42,000) \times 5 = R. 10,000 \text{ A} \\
 \text{C} &\rightarrow (50,000 - 53,000) \times 6 = \underline{\underline{R. 18,000 \text{ A}}} \\
 &\quad \underline{\underline{78,000 \text{ A}}}
 \end{aligned}$$

Mat Price Variance = $\text{Actual Qty} \times (\text{Std Rate} - \text{Actual rate})$

$$\begin{aligned}
 \text{Mat A} &\rightarrow 35,000 \times (10 - 9) = R. 35000 \text{ F} \\
 \text{B} &\rightarrow 42,000 \times (5 - 6) = R. 42000 \text{ A} \\
 \text{C} &\rightarrow 53,000 \times (8 - 7) = R. 53000 \text{ A} \\
 &\quad \underline{\underline{60,000 \text{ A}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Net Result} &\rightarrow MUV + MPV \\
 &= R. 78000 + 60,000 = R. 138000 \\
 &\quad \text{Adverse.}
 \end{aligned}$$

Mat Mix Variance = $(\text{Revised Std Qty} - \text{Actual Qty}) \times \text{S.R.}$

Material A \rightarrow What is the Revised Std Qty ?

B \rightarrow "

C \rightarrow "

We are to calculate that first, then we will calculate mat mix variance.



Now, Revised std Oly = $\frac{\text{Total actual weight mix}}{\text{Total std weight mix}}$

Mat A \rightarrow Revised Std Oly \times Std Oly

$$\text{Std Oly} \rightarrow \frac{13000}{12000}$$

$$\frac{13000}{12000} \times 30,000 = 32500 \text{ kg}$$

(P.L. See Page - 2)

Mat - B \rightarrow $\frac{13000}{12000}$

$$\frac{13000}{12000} \times 40,000 = \frac{13000}{3} \text{ kg.}$$

Mat - C \rightarrow $\frac{13000}{12000}$

$$\frac{13000}{12000} \times 50,000 = \frac{162500}{3} \text{ kg.}$$

Now,

Mat Mix Variance:

Mat A \rightarrow (Revised std Oly - Actual Oly) \times Std. Rate.

$$= (32500 \text{ kg} - 35000 \text{ kg}) \times R.10 = R.25000 A$$

B \rightarrow $(\frac{13000}{3} - 42000) \times R.5 = R.6667 F$

C \rightarrow $(\frac{162500}{3} - 53000) \times R.6 = R.7000 F$
 $\xrightarrow{\text{total}} \underline{R.11,333 A}$

This formula is applied when ratio of standard mix differs from the ratio of actual mix and also total Oly of actual mix and std mix differs. In this case only Revised std Oly is required to be calculated.



In case so happens that, ratio of std mix di^{ff}ers from ratio of actual mix but total quantity of std mix and ~~a~~ total di^{ff} of actual mix remaining same, then the formula is a different one.

$$\text{Mat mix variance} = (\text{std di}f - \text{actual di}f) \times \text{SQ}$$

Say, an example:

	<u>Std</u>	Actual
Mat A -	90 units @ R.12	100 units @ R.12
B -	60 " " @ R.15	50 " " @ R.16
	<u>150</u>	<u>150</u>

Here, total di^{ff}ers of std and actual are same.
Now:

$$\begin{aligned} \text{mmv} - A &= (90 \text{ units} - 100 \text{ units}) \times R.12 = 120 \text{ A} \\ B &= (60 \text{ units} - 50 \text{ units}) \times R.15 = 150 \text{ F} \end{aligned}$$

Now, I think you have understood.

Thanks
A.B.