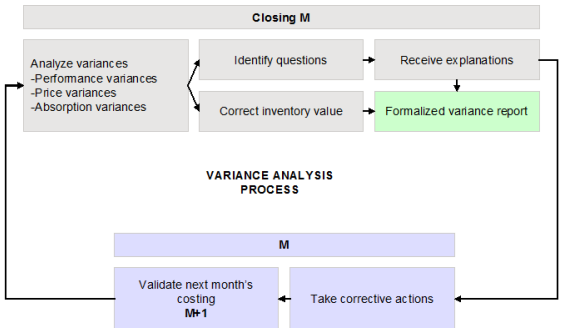
IAC 01.02 - Variance analysis

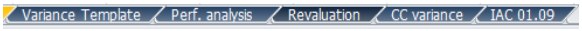
The variance is the difference between the expected standard cost and the actual cost incurred. Variance analysis involves breaking down the total variance to explain how much of it is caused by usage of resources being different from the standard and how much of it is caused by the price of resources being different from the standard.



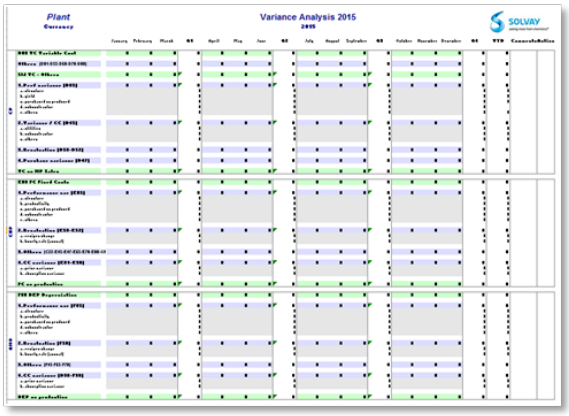
Each site controller has the responsibility to analyze each month the variance and to explain this variance in order to :

- Understand the reasons
- Initiate corrective actions
- If needed adjust the inventory value and change the semi-standard way of calculation, depending on the origin of the variance.

This process of analysis, whatever the result be a change of costing or not, must be formalized, and archived as a justification of records based on following sheets :



Open the sheet "Variance Template"

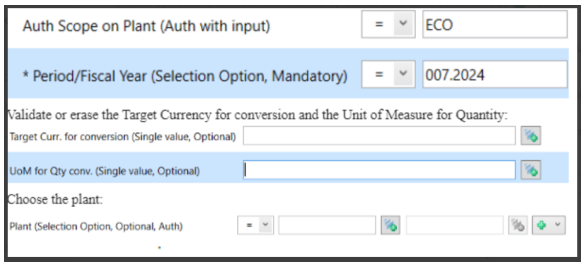


STEP 1

Step 1: Open the file.

Choose the authorization scope and the period / fiscal year

SCOPE : SCO



BW File on

BW - IMEP - WP2 Variance Analysis

STEP 2

Control that the report BW = KE30:
Total column P = D05
Total column Q = E05
Total column R = F05

STEP 3

List the products that generate the main variances

		Total
128581	FENTAMINE MADHT BULK(CN)	101,523 CNY
128201	FENTACARE DHT21 I 75 BULK	109,349 CNY
128428	FENTACARE EAPB BULK(CN)	145,125 CNY
128568	FENTAMINE DMAPA CRUDE BULK(CN)	170,968 CNY
128192	FENTACARE DHT21 E 75 BULK	201,829 CNY
124051	FENTAMINE DMA1270 BULK	204,609 CNY
128620	JAGUAR C 14 S BULK(CN)	224,074 CNY
128541	FENTAMINE DMA1270D BULK(CN)	246,764 CNY
128567	FENTAMINE DMAPA BULK(CN)	354,980 CNY
128278	INT NITRIL HT BULK(CN)	618,017 CNY
TOTAL		**2,377,238 CNY**

STEP 4

Explain the main variances

a. structure: Production version change / Raw material / Recycling / Others

How to read this variance ?

- *Material 53789 TY A 218 V30 BLACK 34NG XXXX was produced with a different production version than the one used for the costing*
- *In the production version (B332) used for the costing, it is forecasted to produce one batch in 18,239 hours. But this material was produced in 17,90 h on an other production line.*

It creates the following variance on process order :

Order	Mat.	Material description	Origin	Actual Qty	Tgt Qty SCE	Item UM	FC Var.	DEP Var.	PrdVer.	Pr.Vr.
2084855	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1133 AMO	17,900	0,000	H	0,00	376,83	B332	A413
	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1133 CNP	17,900	0,000	H	3 620,24	0,00	B332	A413
	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1133 MANHO	17,900	0,000	H	2 665,67	0,00	B332	A413
	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1141 AMO	0,000	18,239	H	0,00	385,40-	B332	A413
	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1141 CNP	0,000	18,239	H	3 719,52-	0,00	B332	A413
	53789	TY A 218 V30 BLACK 34NG XXXX	7822-1141 MANHO	0,000	18,239	H	2 805,63-	0,00	B332	A413
20848				**53,700**	**54,717**	**H**	**239,24-**	**8,57-**		

	Actual hours	Standard hourly rate 7822-1133	Actual costs	Std hours	Standard hourly rate 7822-1141	Standard costs	Variances
MANHO	17,90	148,92	2 665,67	18,24	153,83	2 805,63	-139,96
CNP	17,90	202,25	3 620,24	18,24	203,93	3 719,52	-99,28
E05 FC ProcessO Var			**6 285,91**			**6 525,15**	**-239,24**
AMO	17,90	21,05	376,83	18,24	21,13	385,40	-8,57
F05 DEP PocessO Var			**376,83**			**385,40**	**-8,57**

b. yield: RM consumption is higher or lower than std quantity

How to read this variance ?

- *The actual time (96 h) to produce material 64712 PA 66 MOLTEN POLYMER is higher than the standard time (84,261h)*
- *It creates the following variance on process order :*

Order	Mater.	Material description	Origin	Origin Description	Actual Qty	Tgt Qt	Item	FC Var.	DEP Var	PrdVers PO	Pr.Vr.
2090986	64712	PA 66 MOLTEN POLYMER	7822-1304 AMO	ATY Z006/7822-1304/AMO	96,000	84,261	H	0,00	264,50	PC41	PC41
	64712	PA 66 MOLTEN POLYMER	7822-1304 CNP	ATY Z006/7822-1304/CNP	96,000	84,261	H	1 666,32	0,00	PC41	PC41
	64712	PA 66 MOLTEN POLYMER	7822-1304 MANHO	ATY Z006/7822-1304/MANHO	96,000	84,261	H	497,75	0,00	PC41	PC41
20909					**288,000**	**252,783**	**H**	**2 164,07**	**264,50**		

	Actual hours	Standard hourly rate 7822-1304	Actual costs	Std hours	Standard hourly rate 7822-1304	Standard costs	Variances
MANHO	96,00	42,45	4 075,03	84,26	42,45	3 576,73	498,30
CNP	96,00	141,95	13 626,91	84,26	141,95	11 960,60	1 666,32
E05 FC ProcessO Var			**17 701,94**			**15 537,32**	**2 164,62**
AMO	96,00	22,55	2 164,84	84,26	22,55	1 900,12	264,72
F05 DEP PocessO Var			**2 164,84**			**1 900,12**	**264,72**

c. purchased vs produced: material is purchased instead of produced or vice & versa

How to read this variance ?

- *Material 63324 is supposed to be produced but it was purchased*
- *As it is purchased, the production cost = 100 % CP while in the costing the production cost is splited into CP / CNP / AMO*

Order	Mater.	Material description	Origin	Origin Description	Actual Qty	Tgt Qt S...	Item	FC Var.	DEP Var.
2084538	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	63324	SB 27 AE 1 F (EX 27/A-00 MS) N	8 000	8 000	KG	2 863,94-	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1050003	CARTON TOP 1121*1121*190	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1050009	CARTON BOTTOM FOR CRATE 1	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1050012	BELT REP FOR CARTON 1085X'	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1050019	CARTON SIDE EXT 1101X1101X	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1050023	PE SACK 2000X3300 200µ	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	1060594	WOOD PALLET CP8 1140X1140	0	8,960-	PC	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	62575	SB 27 AE 1 F (ex 27/A-00 MS)	0	8 000-	KG	8 836,34	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E						0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	7822-1008 UELEC	ATY Z006/7822-1008/UELEC	0	0,256-	MWH	0,00	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	7822-1180 AMO	ATY Z006/7822-1180/AMO	0,000	5,336-	H	0,00	59,65
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	7822-1180 CNP	ATY Z006/7822-1180/CNP	0,000	5,336-	H	155,15	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	7822-1180 MANHO	ATY Z006/7822-1180/MANHO	0,000	5,336-	H	0,34	0,00
	63324	SB 27 AE 1 F (EX 27/A-00 MS) NAT (811)/E	SETLEMENT	SETLEMENT				0,00	0,00
20845					**0,000**	**16,008-**	**H**	**6 127,89**	**59,65**

d. subcontractor: Material is produced by a subcontractor instead of an internal production

How to read this variance ?

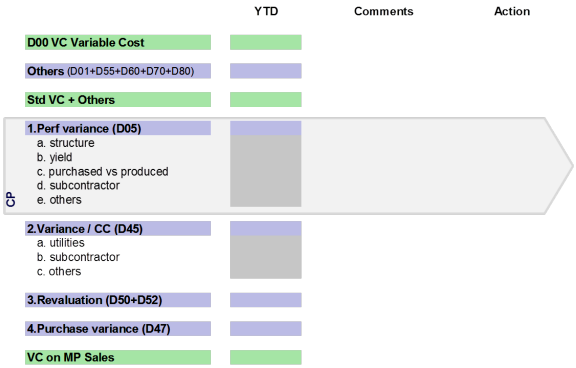
- *Same principle as the previous variance*

- *When a material is produced by a subcontractor instead of an internal production*

e. others: to be commented

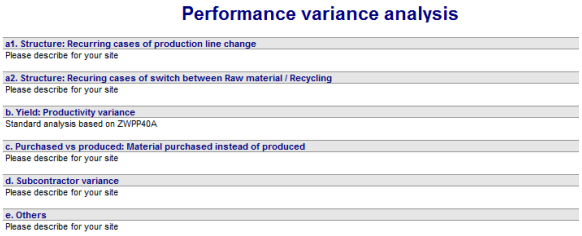
STEP 5

Fill in those information in « variance template » tab



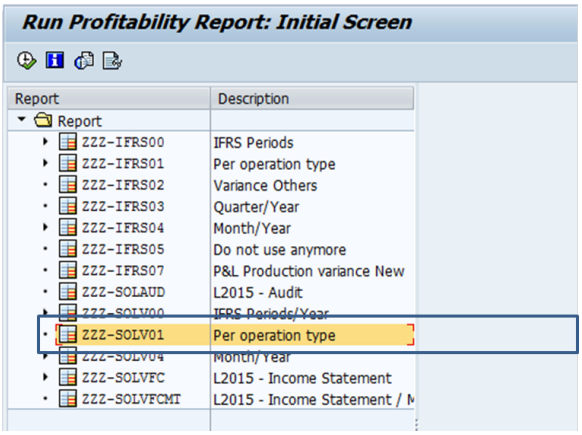
STEP 6

When there are recurring performance variances, they can be listed in the sheet "Perf. analysis"



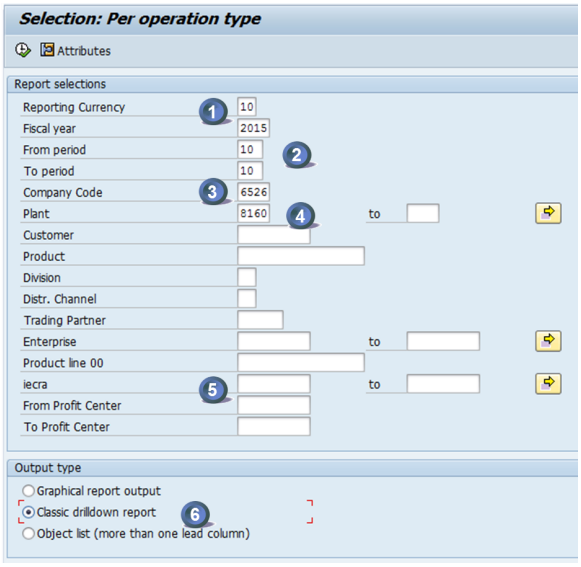
STEP 1

Use the transaction **KE30** and choose the report **ZZZ-SOLV01**



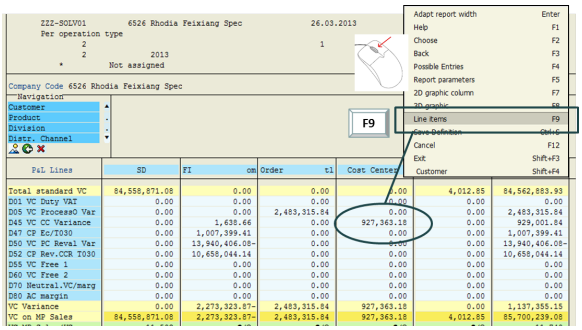
Enter

1. the reporting currency = 10
2. the period
3. the company code
4. the plant code
5. the IECRA (when applicable)
6. select : "Classic drilldown report"



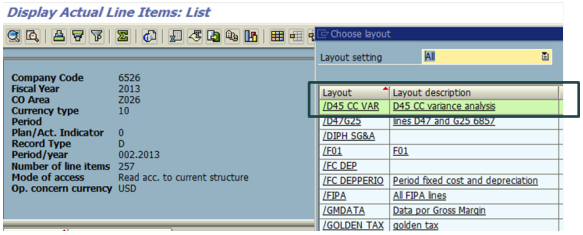
STEP 2

To have the detail of the value field D45 VC CC Variance => click on the amount, right click and select "Line items" or click F9



STEP 3

Use the lay out **/D45 CC VAR** to have the variance by cost center



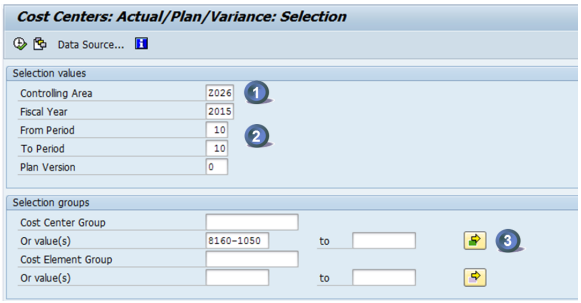
Currency	Sender cost center	D45 VC CC Variance
CNY	6526-9201	2,39-
CNY	8160-1050	578 119,71
CNY	8160-1051	282 321,47
CNY	8160-1052	9 204,15-
CNY	8160-1053	127 524,10
CNY	8160-1054	7 515,07-
CNY	8160-1055	441 620,78-
CNY	8160-1056	10 999,99
CNY	8160-7000	28 483,77
CNY	8160-7008	466 330,78
CNY	8160-7040	74 889,90
CNY		1 110 327,33

STEP 4

To have the detail of the cost centers, you can use the transaction **S_ALR_87013611**

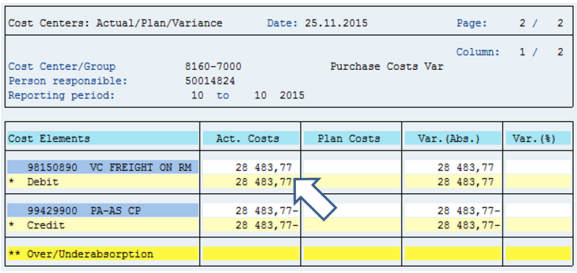
Enter :

1. the controlling area
2. the period
3. the list of cost centers you want to analyse



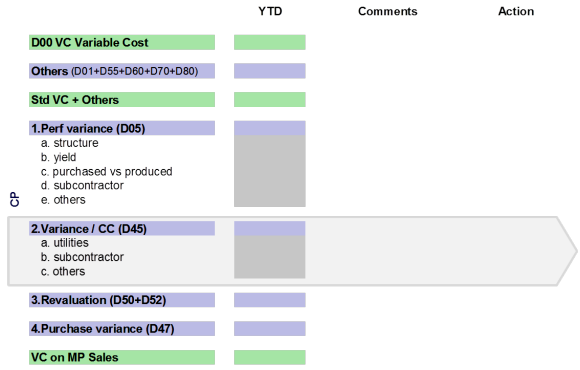
STEP 5

Double click on the amount you want to analyse



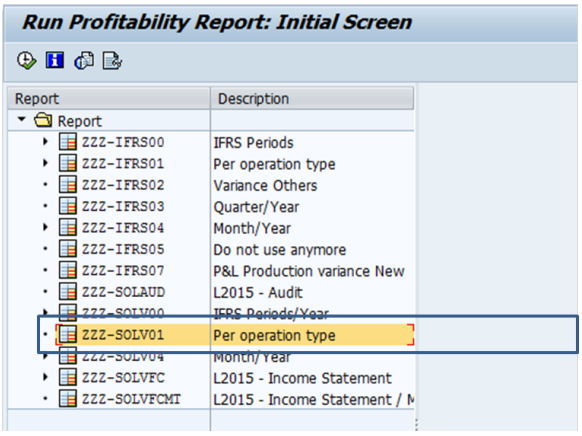
STEP 6

Fill you the variance template with your analysis



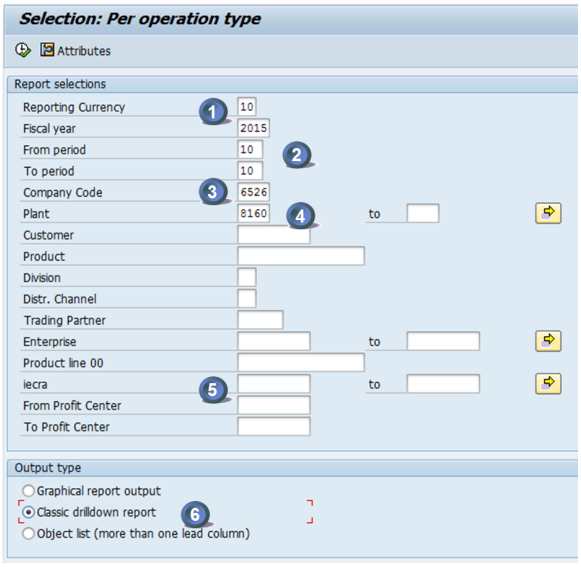
STEP 1

Use the transaction **KE30** and choose the report **ZZZ-SOLV01**



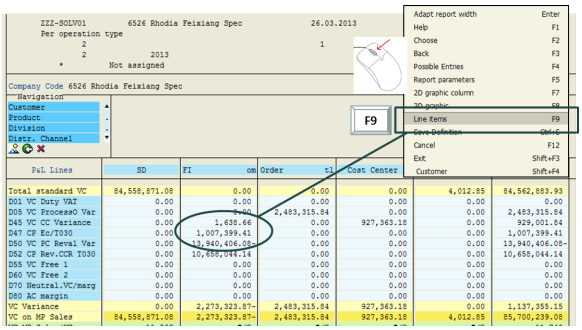
Enter

1. the reporting currency = 10
2. the period
3. the company code
4. the plant code
5. the IECRA (when applicable)
6. select : "Classic drilldown report"



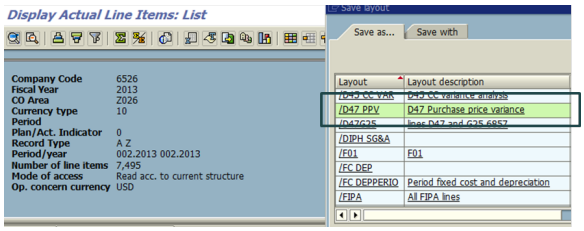
STEP 2

To have the detail of the value field D47 Ec/T030 => click on the amount, right click and select "Line items" or click F9



STEP 3

Use the lay out **/D47 PPV** to have the variance by material code



Product	D47 CP Ec/T030
128730	118,48
128738	8 958,14-
128746	139 256,44
128747	160 507,75
128750	8 030,52
128751	52 574,80
128760	49 182,45
128763	84 364,24
128764	43 254,41-
128769	655,67
128772	0,18
128773	20 245,17

STEP 4

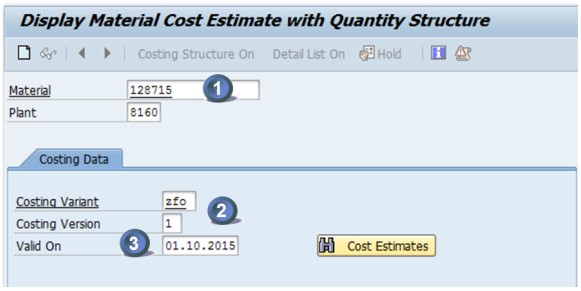
Explain the main variances

Display the standard costing of the material with CK13N.

Enter :

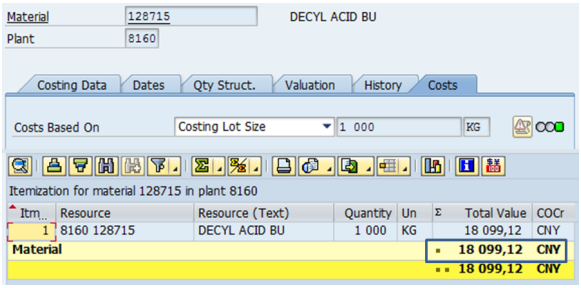
1. The material & plant code
2. The costing variant
3. The validity date

and Enter ↵



The standard cost of the material code 128715 is

18 099,12 CNY / 1 000 kg

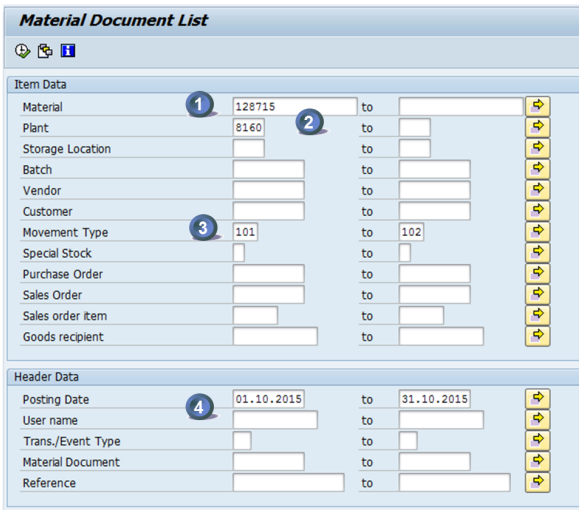


STEP 5

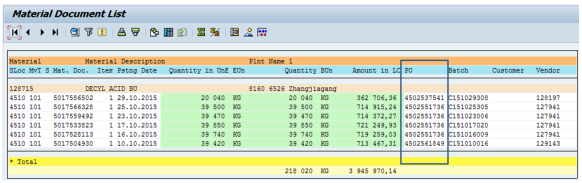
Display the actual purchase price of the same material with the transaction MB51.

Enter:

1. the material code
2. the plant code
3. the movement type = **101** to **102**
4. posting date = 1 month

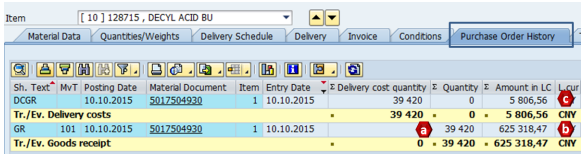


The list of purchase orders to be analysed is displayed



STEP 6

Display a purchase order to calculate the purchase price variance



a - Quantity purchased

b - Purchase price

c - Delivery costs

d - TOTAL costs = **b** + **c**

e - Actual unit price = **d** / **a**

f - Standard cost (from CK13N)

h - Purchase price var = (**f** - **e**) / **a**

Purchase orders	4502561849		
Purch qty	39.420,00	KG	a
Purchase price	625.318,47	CNY	b
Delivery costs	5.806,56	CNY	c
TOTAL costs	631.125,03	CNY	
Actual unit price	16.010,27	CNY / Ton	
Standard cost	18.099,12	CNY / Ton	
Purchase price var	82.342,28	CNY	

Each month, the inventory is revaluated with the new standard cost.

Revaluation = [Standard cost (M) – Standard cost (M-1) x Quantity 01/01/M (00h00)
The variance is due to a more or less efficient use of the time available to carry out the actual production. It compares the actual time taken to carry out an activity with the standard time allowed and values the difference at the standard.

The analysis is performed with the report ZWPP40A
Each month, the inventory is revaluated with the new standard cost. Revaluation = [Standard cost (M) – Standard cost (M-1) x Quantity 01/01/M (00h00)

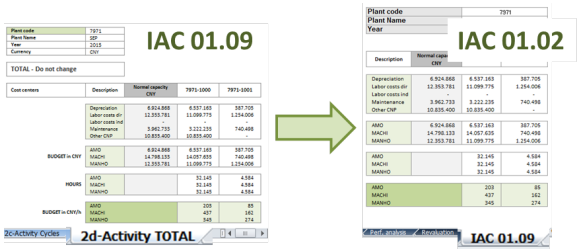
There is a revaluation of fixed costs when:

- there is a modification of the production process
- in January with the new standard hourly rate

STEP 1

Once a year, when the control IAC 01.09 is completed and uploaded in WP2.

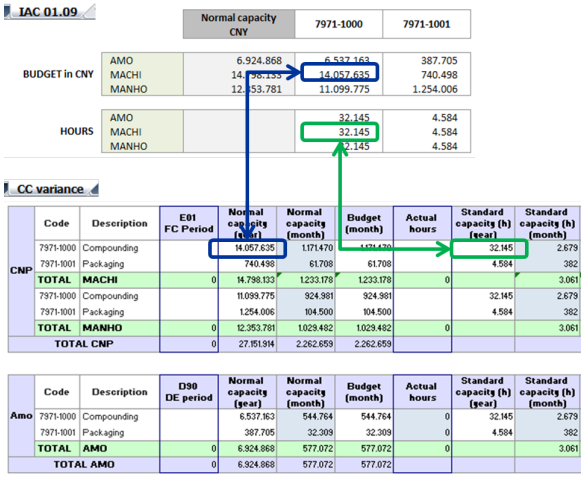
- Copy the result of the sheet "2d-Activity TOTAL" and paste the result in the tab "IAC 01.09"



STEP 2

Update the sheet "CC variance" and enter:

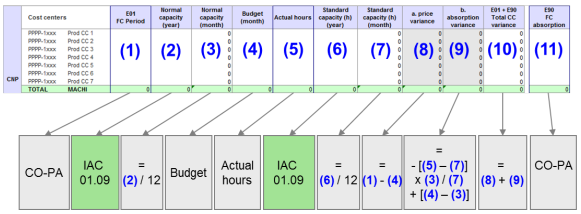
- the list of production cost centers
- the column "normal capacity (year)"
- the column "Budget (month)" - usually it is equal to the column "Normal capacity (month)"
- the column "standard capacity (h) (year)"



STEP 3

Each month, you have to update the actual costs & hours.

The price variance & the absorption variance will be automatically calculated

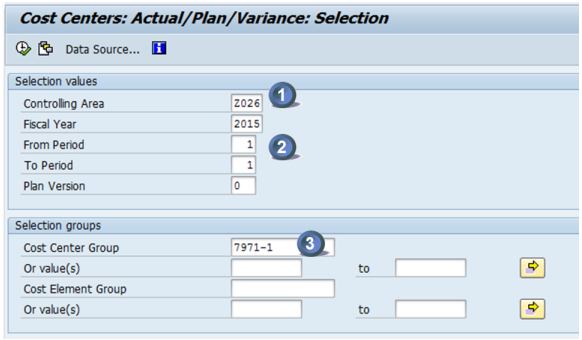


STEP 4

For the monthly update use the transaction S_ALR_87013611

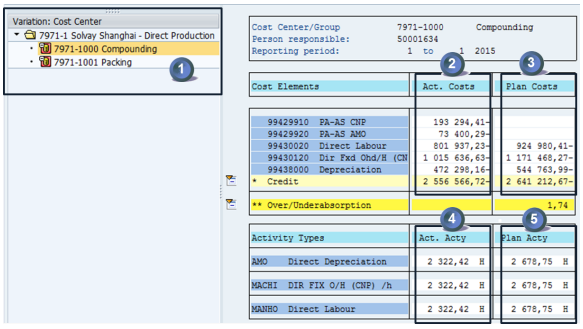
Enter

1. the controlling area
2. the period
3. the group of production cost centers



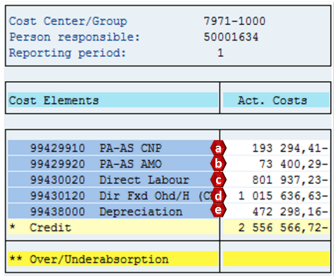
STEP 5

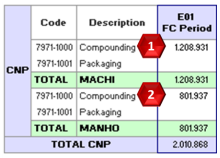
1. Production cost centers
2. Actual fixed costs
3. Plan costs from IAC 01.09 (local currency)
4. Actual hour
5. Normal capacity from IAC 01.09 (h)

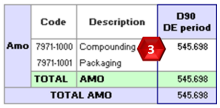


STEP 6

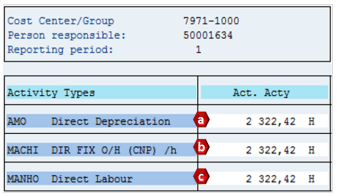
Report the actual costs of each cost center per activity

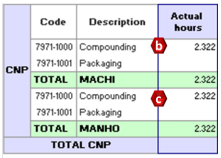


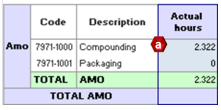




Report the actual hours of each cost center per activity

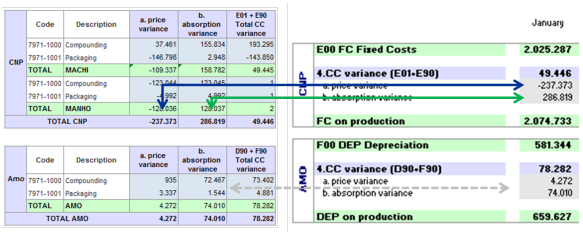






STEP 7

Once the file is completed, the price & absorption variance can be reported in the variance analysis template



	Code	Description	a. price variance	b. absorption variance	E01 + E90 Total CC variance
CNP	7971-1000	Compounding	37.461	155.834	193.295
	7971-1001	Packaging	-146.798	2.948	-143.850
	TOTAL	MACHI	-109.337	158.782	49.445
	7971-1000	Compounding	-123.044	123.045	1
	7971-1001	Packaging	-4.992	4.992	1
	TOTAL	MANHO	-127.036	129.037	2
	TOTAL CNP		-237.373	286.819	49.446

	Code	Description	a. price variance	b. absorption variance	D90 + F90 Total CC variance
Amo	7971-1000	Compounding	935	72.467	73.402
	7971-1001	Packaging	3.337	1.544	4.881
	TOTAL	AMO	4.272	74.010	78.282
	TOTAL AMO		4.272	74.010	78.282

January

CNP	E00 FC Fixed Costs	2.025.287
	4.CC variance (E01+E90)	49.446
	a. price variance	-237.373
	b. absorption variance	286.819
	FC on production	2.074.733

AMO	F00 DEP Depreciation	581.344
	4.CC variance (D90+F90)	78.282
	a. price variance	4.272
	b. absorption variance	74.010
	DEP on production	659.627