SAP Product Costing Master data

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INTRODUCTION

In this e-book we cover the various master data required for the product costing module. Most of the master data is dependent on the Production planning module (PP module).

It is imperative for a Product costing consultant to understand the master data created in the Production planning module and its implications on product costing.

1. Maintaining Material Master for Product costing

1.1 Raw and Packing material

The important views in the material master for the product costing module are the accounting and costing view in raw and packing material.

We will see how to maintain the accounting and costing view for raw material.

The raw material 9100-202 is used in the manufacture of final product 9100-103.

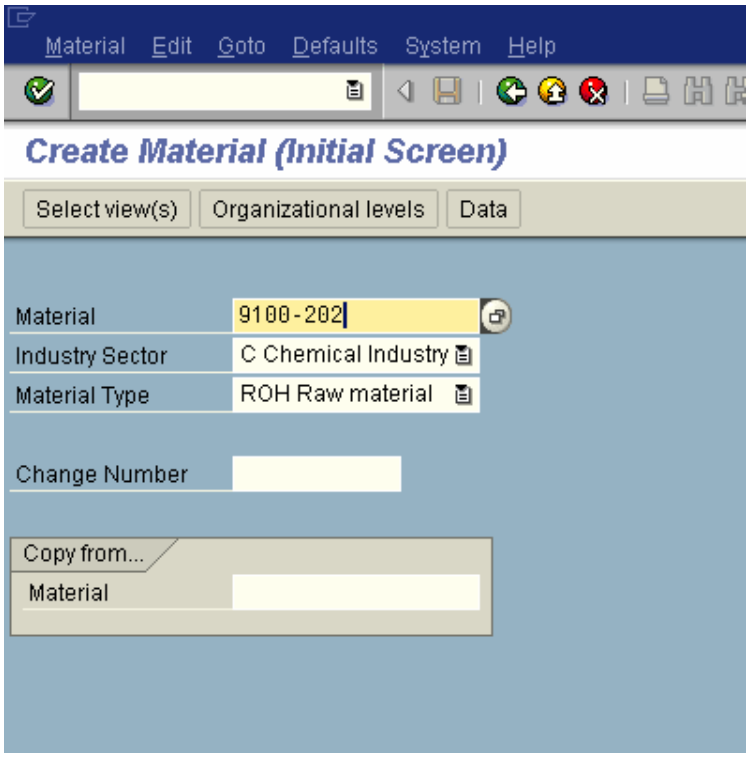
These views are maintained by the Finance and the costing department.

Use transaction code: MM01

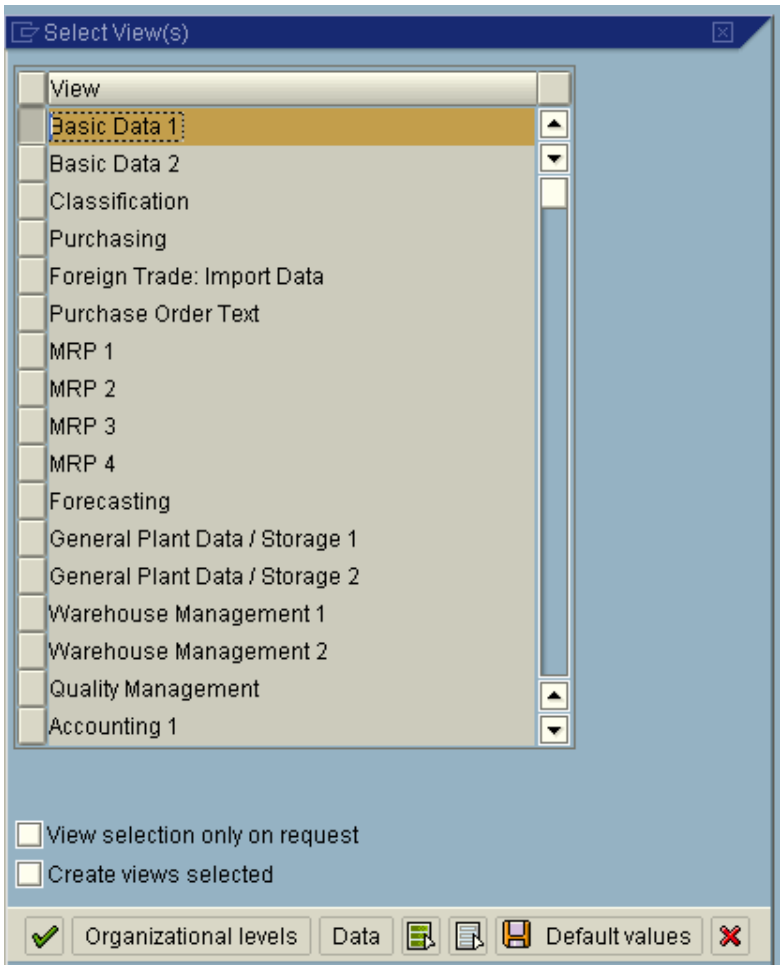
Or

Path:

SAP standard menu → Logistics → Materials Management → Material Master → Material → Create (General) → MM01 - Immediately

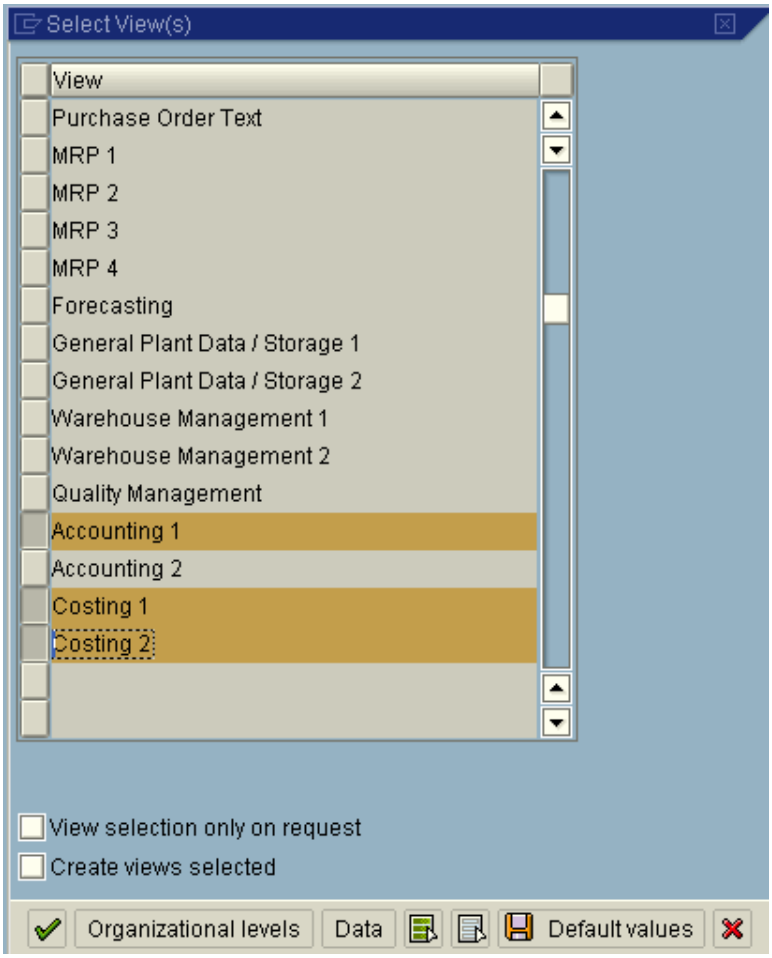


Click

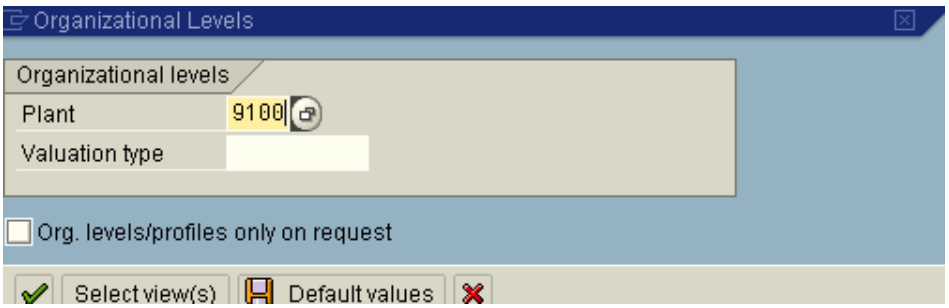


Click

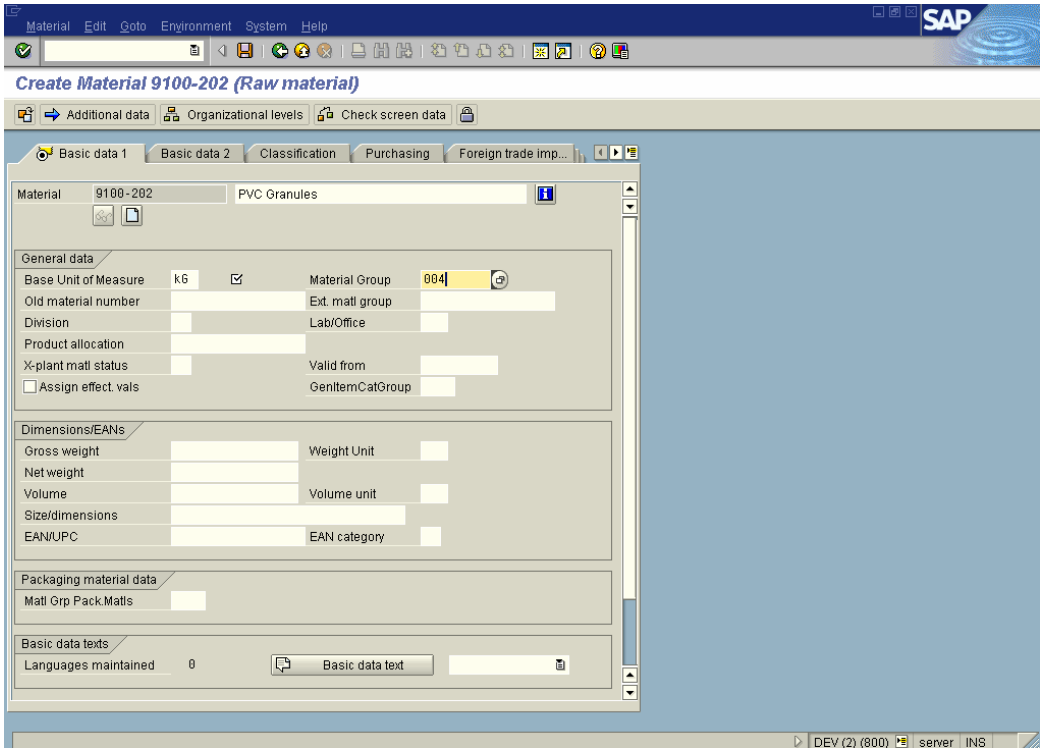
Select Accounting and costing views



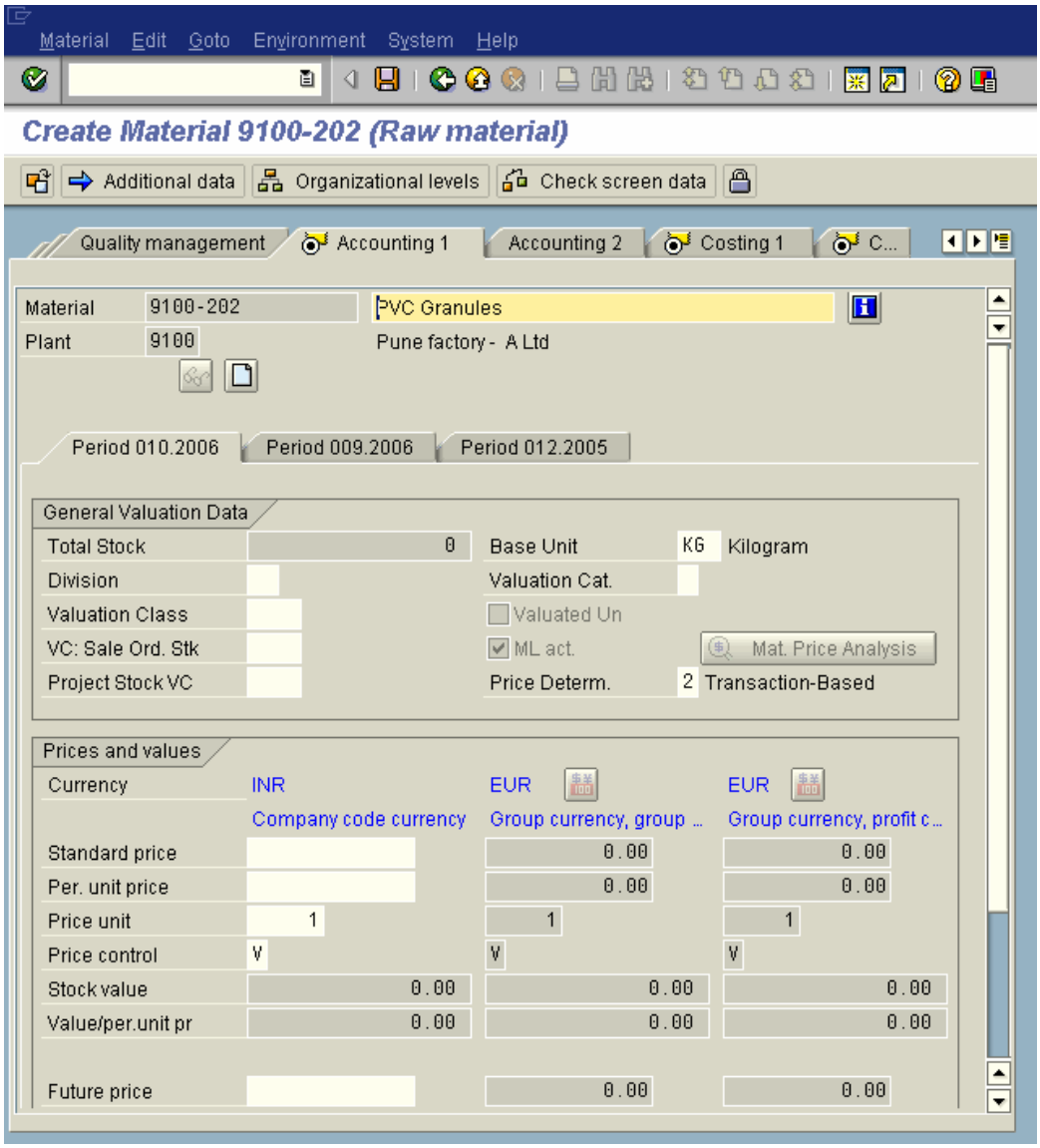
Update the following:-



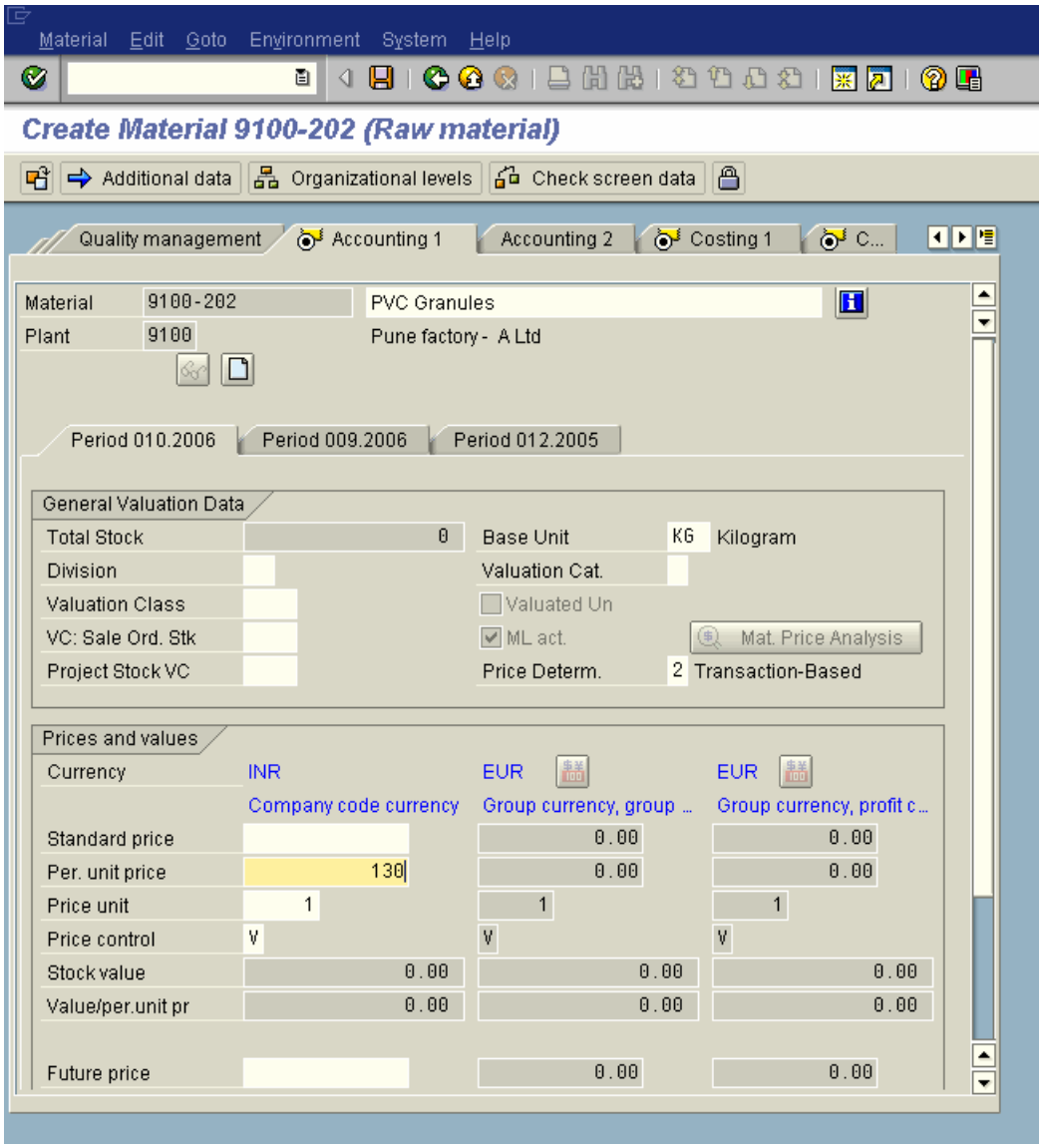
Update the following:-



Click

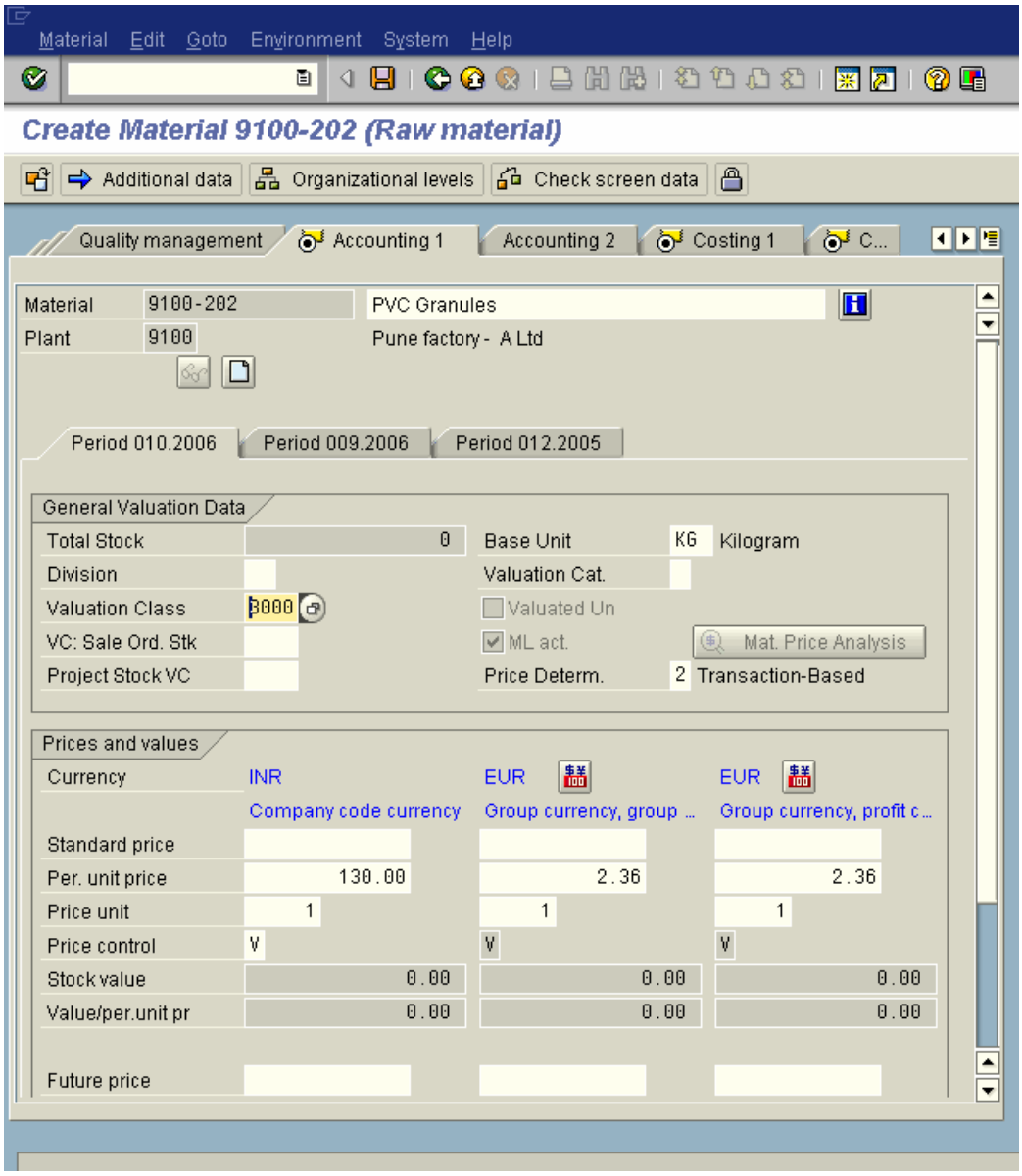


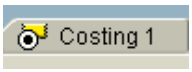
Update the periodic unit price (moving average price). This price is picked up as the price for the raw material (depending upon the setting maintained in the costing variant) when the standard cost estimate is executed for the finished product.

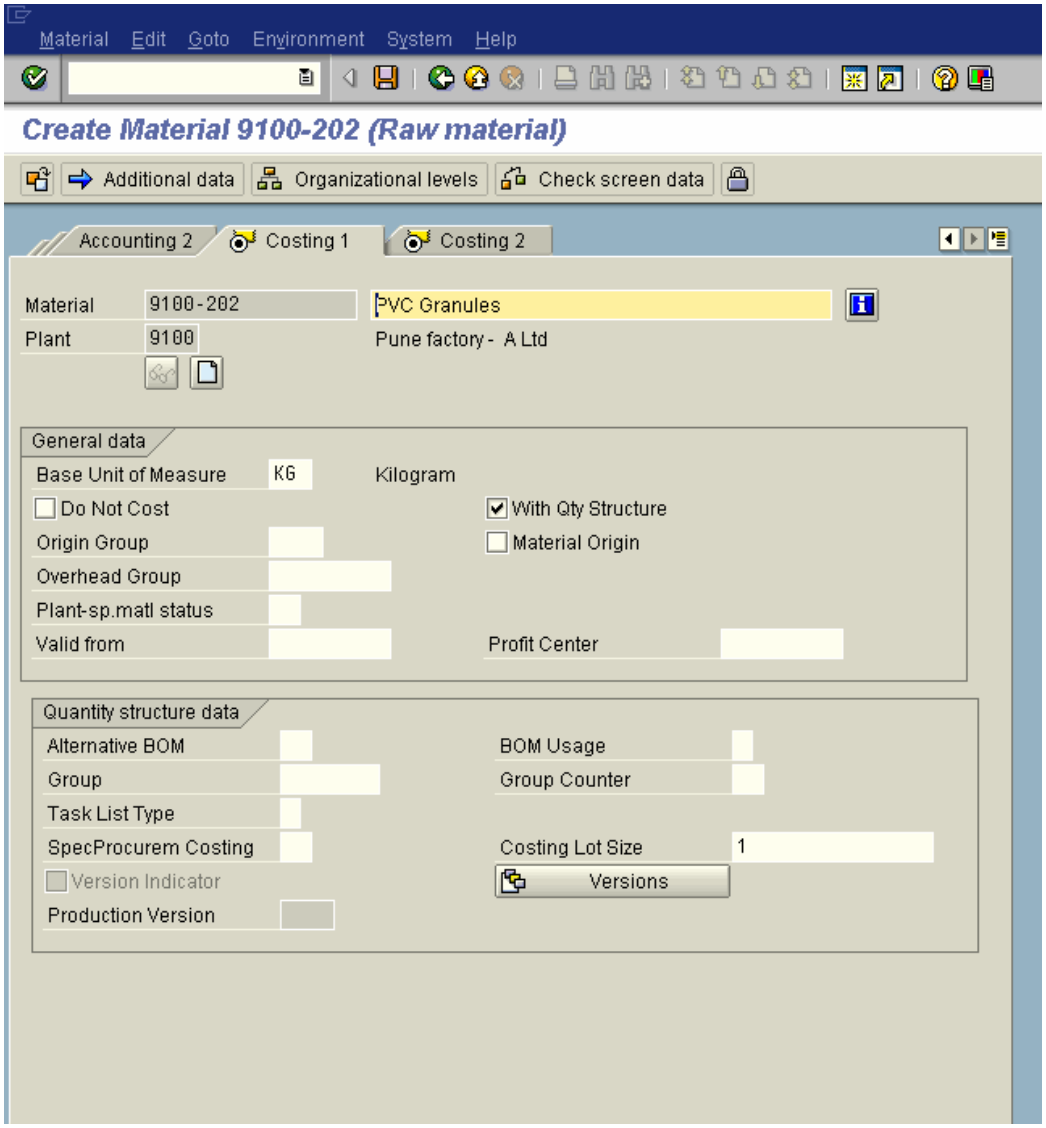


Click

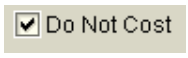
Update the valuation class for raw material


Material Edit Goto Environment System Help
Create Material 9100-202 (Raw material)
Additional data
Organizational levels
Check screen data
Quality management
Accounting 1
Accounting 2
Costing 1
C...
Material 9100-202 PVC Granules
Plant 9100 Pune factory - A Ltd
Period 010.2006
Period 009.2006
Period 012.2005
General Valuation Data
Total Stock 0
Base Unit KG Kilogram
Division
Valuation Cat.
Valuation Class 3000
Valuated Un
VC: Sale Ord. Stk
ML act.
Mat. Price Analysis
Project Stock VC
Price Determ. 2 Transaction-Based
Prices and values
Currency INR EUR EUR
Company code currency
Group currency, group ...
Group currency, profit c...
Standard price
Per. unit price 130.00 2.36 2.36
Price unit 1 1 1
Price control V V V
Stock value 0.00 0.00 0.00
Value/per.unit pr 0.00 0.00 0.00
Future price

Click 



You need to select



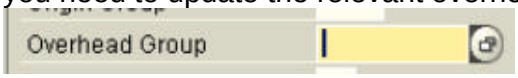
This tick should be selected because system will calculate standard cost estimate for raw material and packing material as well. We do not want system to calculate standards for raw and packaging material hence we select do not cost.

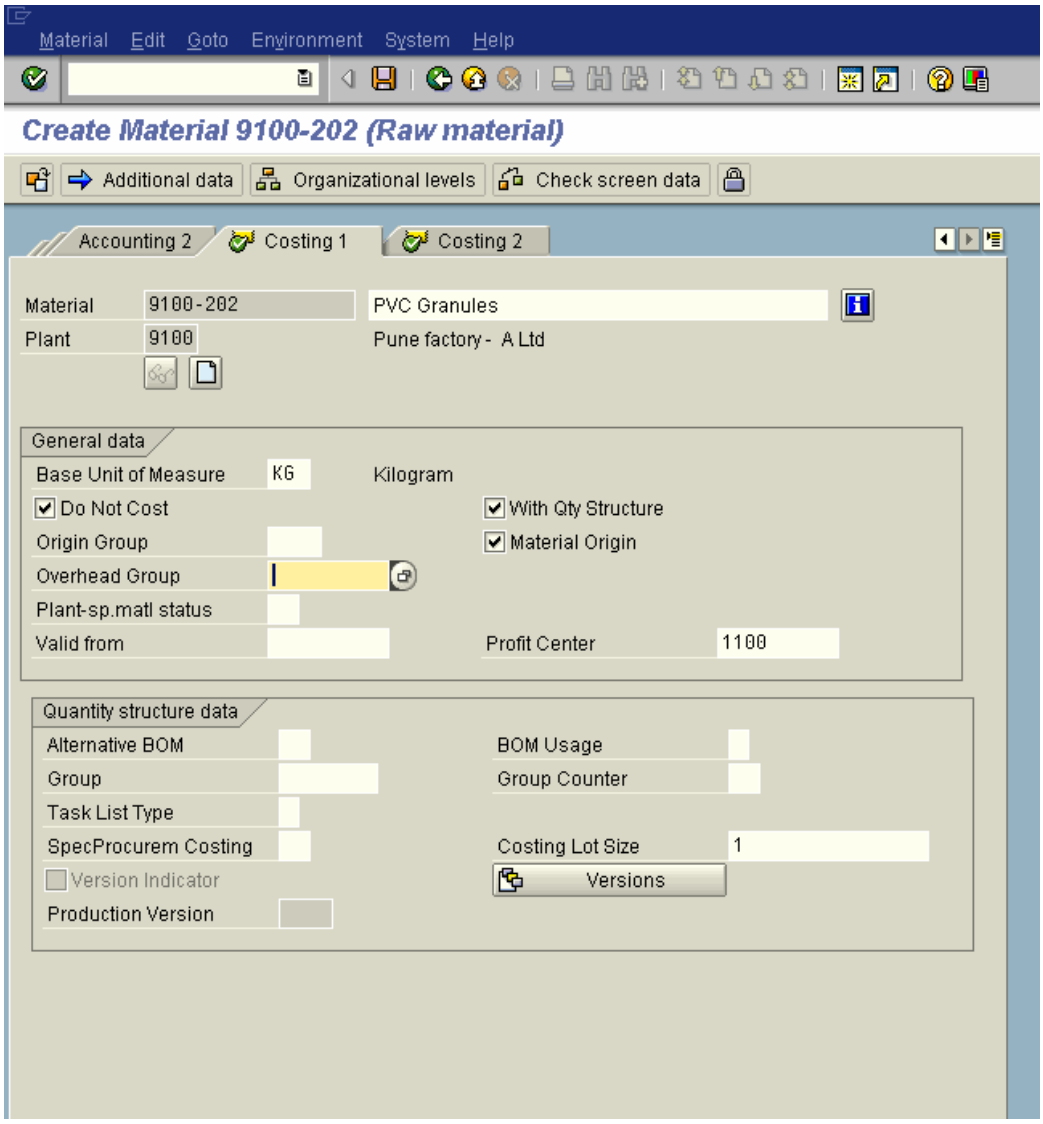
We select this since we cost our finished product with a quantity structure.

This indicator must be selected, whereby the material number will be written to the cost element itemization in the controlling module. This enables us to analyze material costs in the information system in more detail.

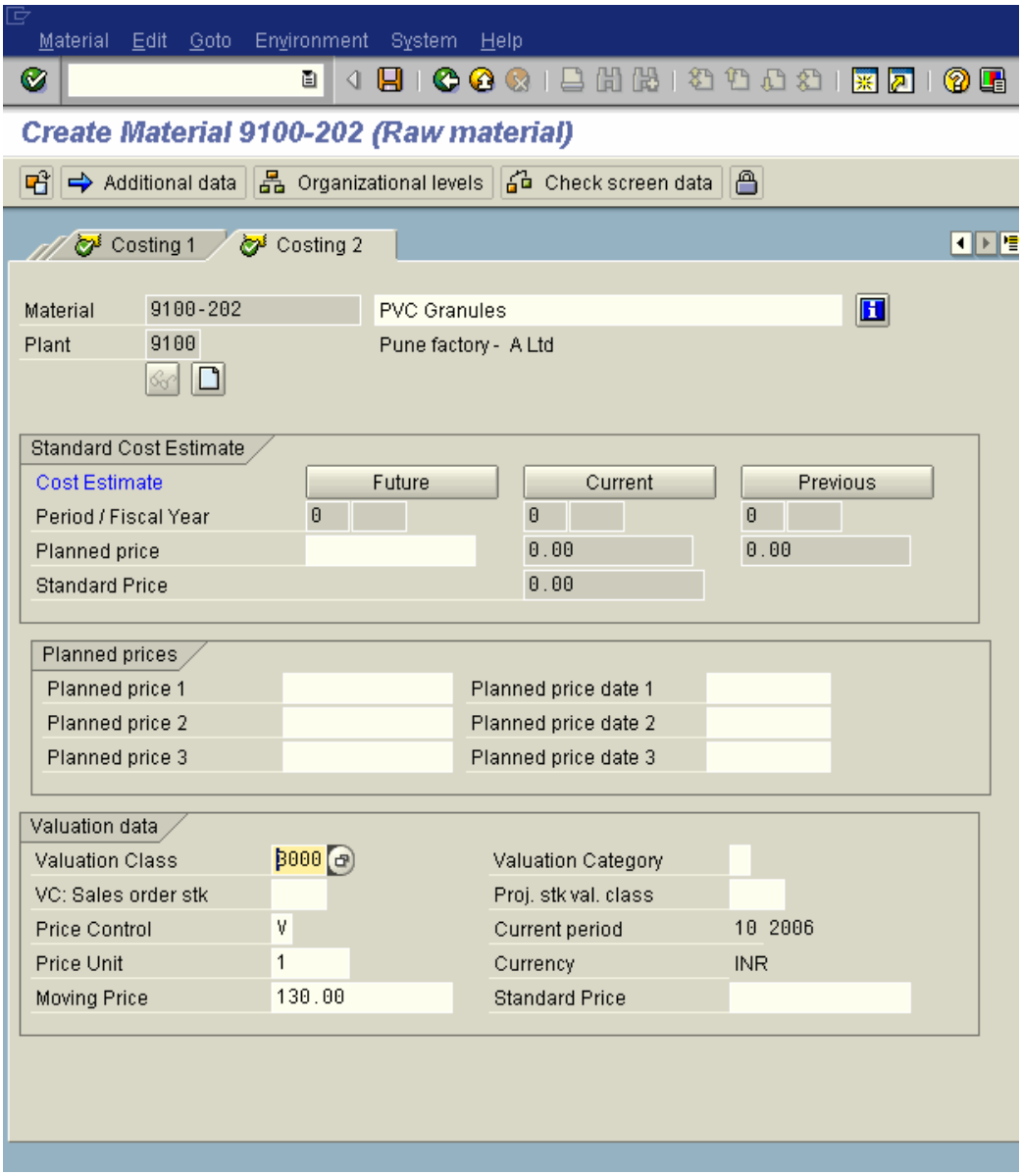
Update the profit center field.

Where different overhead rate are applicable on different raw material then you need to update the relevant overhead group in the field




Material Edit Goto Environment System Help
Create Material 9100-202 (Raw material)
Additional data
Organizational levels
Check screen data
Accounting 2
Costing 1
Costing 2
Material 9100-202 PVC Granules
Plant 9100 Pune factory - A Ltd
General data
Base Unit of Measure KG Kilogram
Do Not Cost
With Qty Structure
Origin Group
Material Origin
Overhead Group
Plant-sp.matl status
Valid from
Profit Center 1100
Quantity structure data
Alternative BOM
BOM Usage
Group
Group Counter
Task List Type
SpecProcurem Costing
Costing Lot Size 1
Version Indicator
Versions
Production Version

Click



The raw material prices can also be maintained in the planned price1, 2 or 3 fields and can be picked up as prices during the standard cost estimate calculation of the finished product. This depends on the configuration setting in the costing variant.

Click on to save the material master

1.2 Finished good

Let us now see the material master creation of Finished good.

Use transaction code: MM01

Or

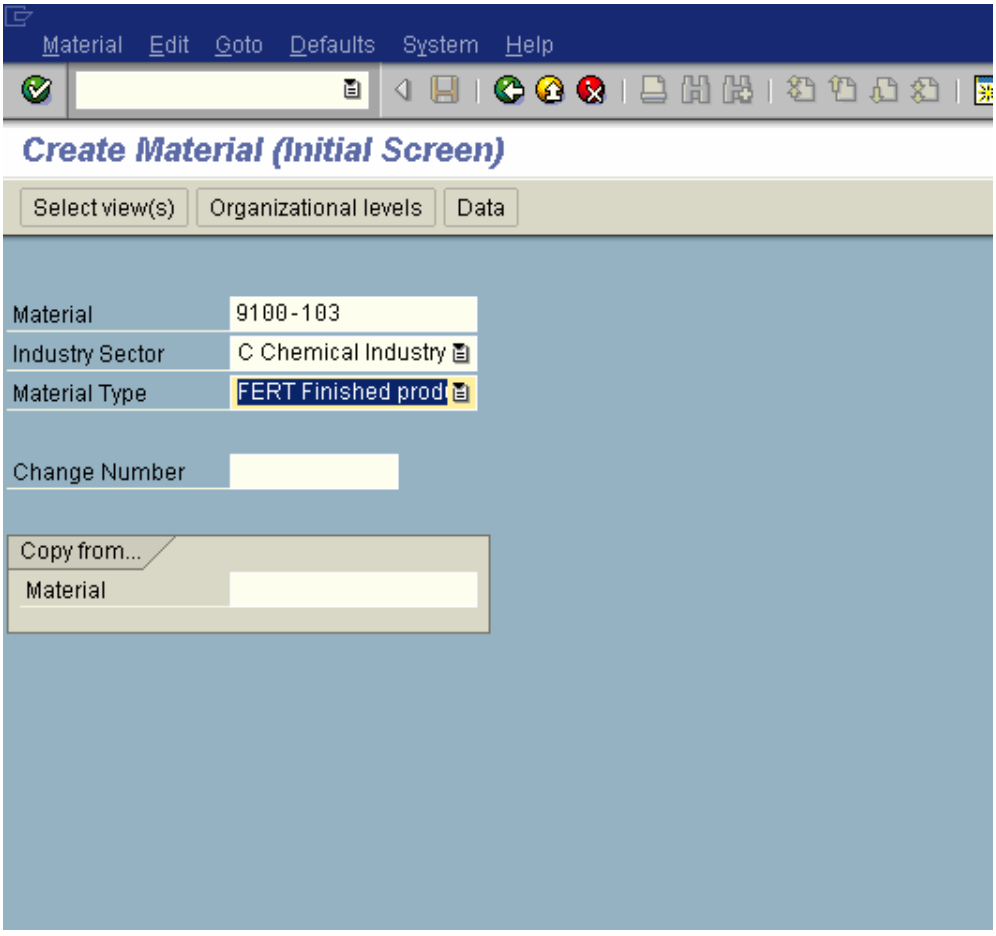
Path:

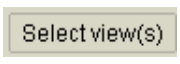
SAP standard menu → Logistics → Materials Management → Material Master → Material → Create (General) → MM01 - Immediately

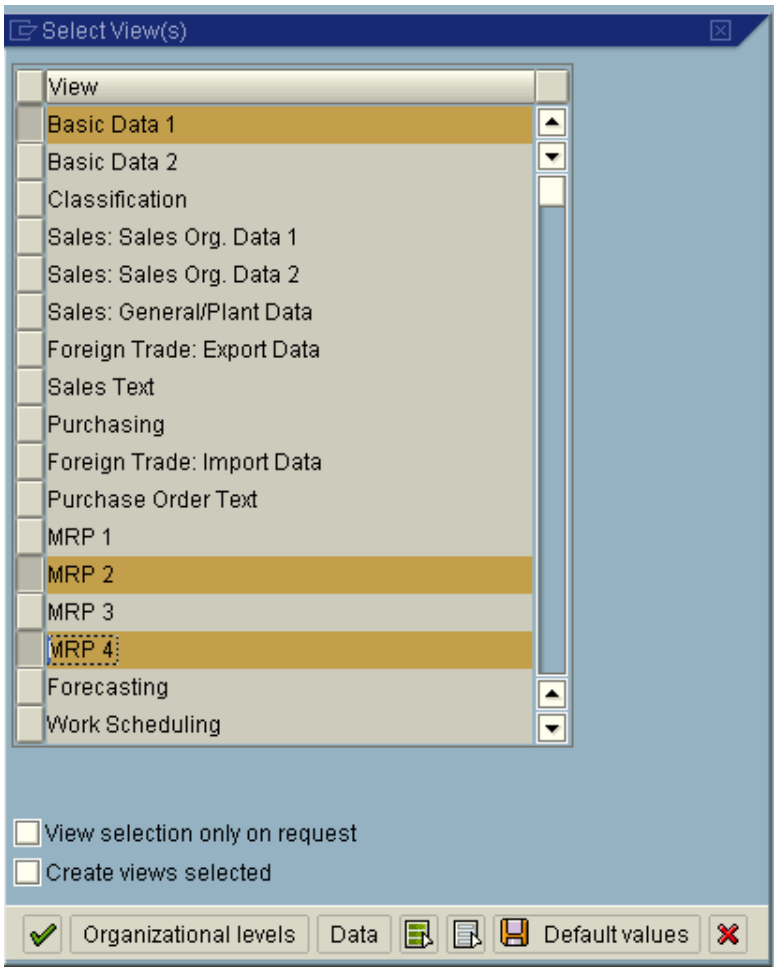
The important views for finished goods are MRP 2, MRP 4, Accounting and costing view.

The MRP views are maintained by the Production planning (PP) guys.

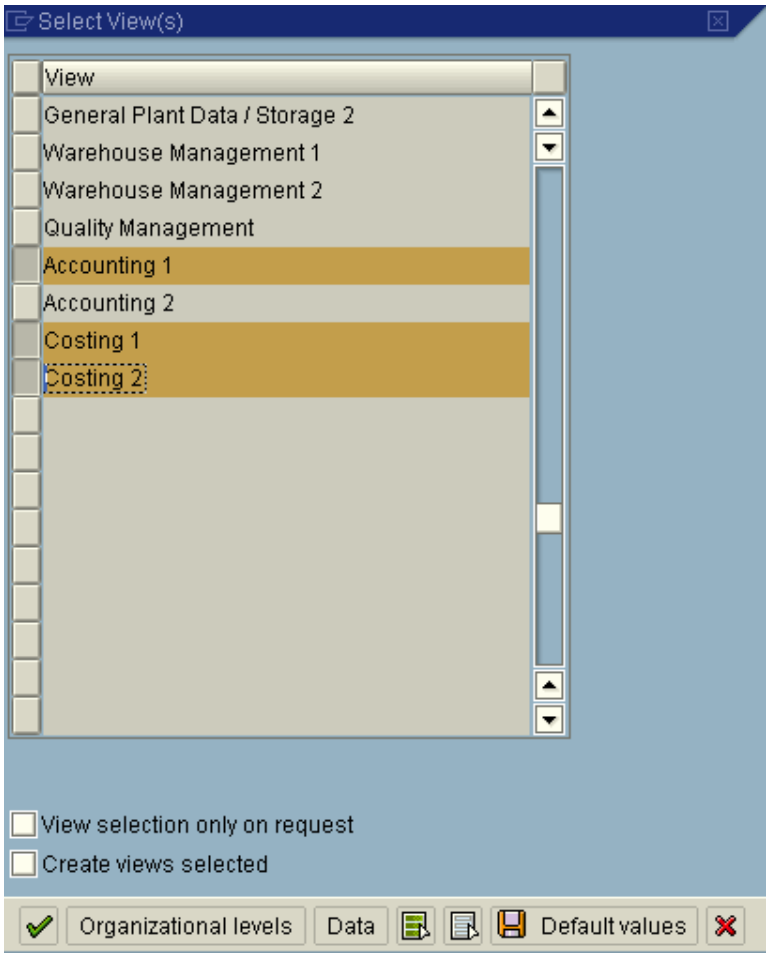
It is imperative for a product costing consultant to know these views.



Click 

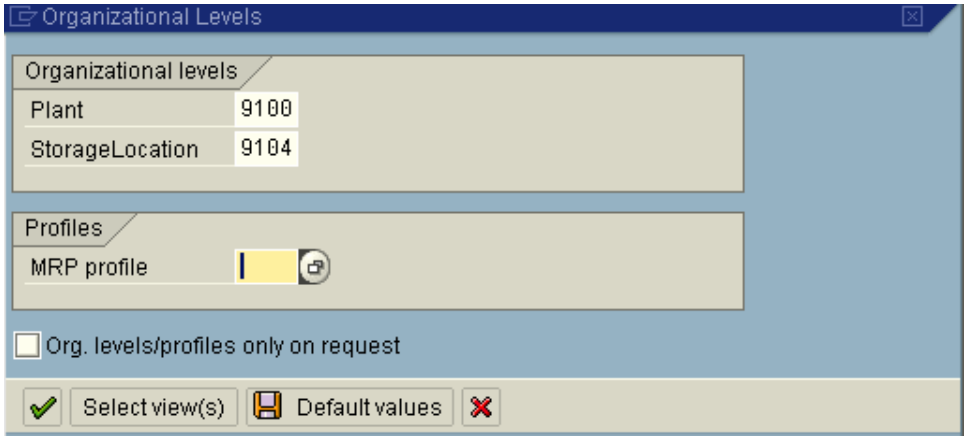


Click and also select



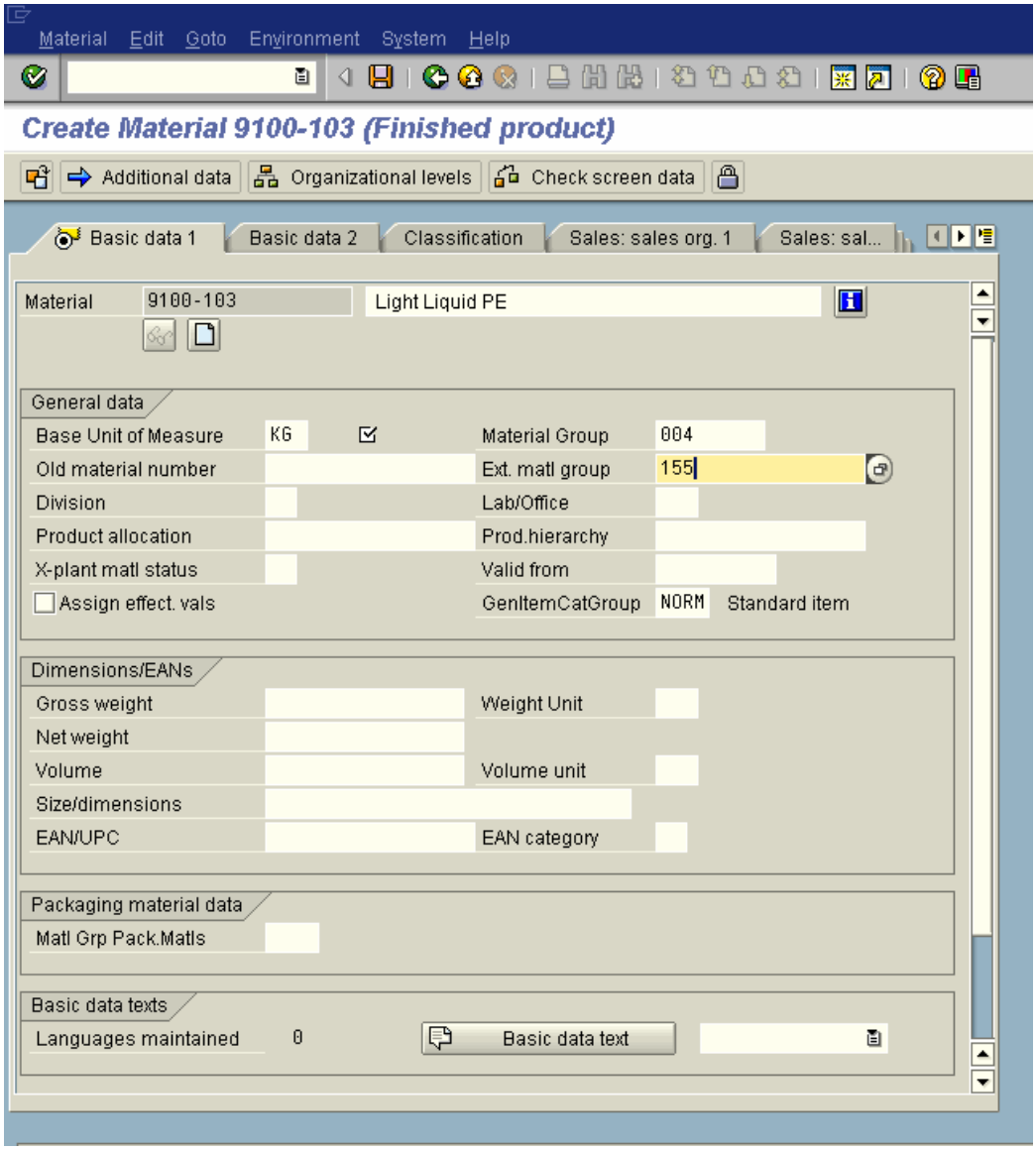
Click

Update the following:-

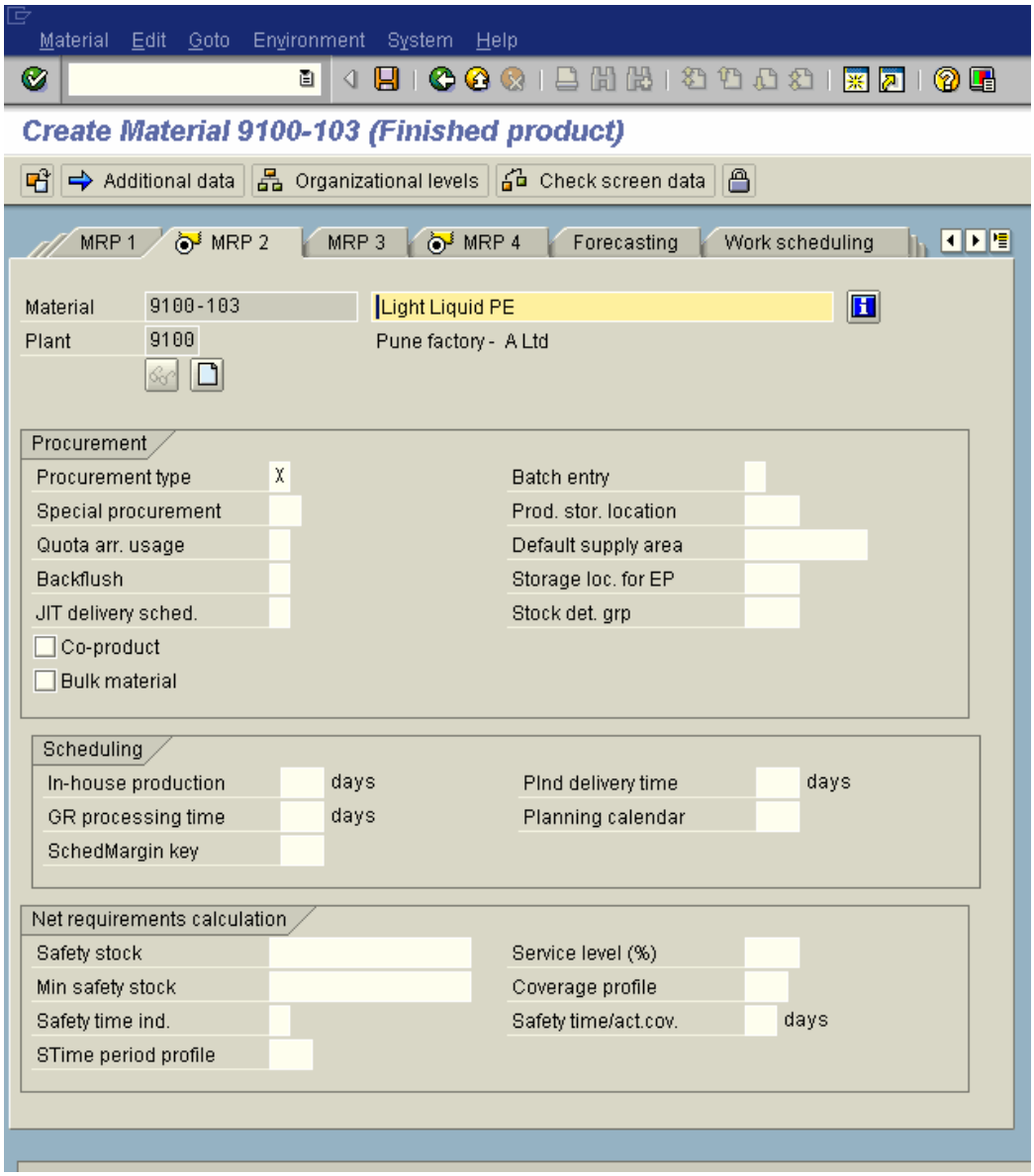


Click

Update the following:-



Click



Select the Procurement type as

In case of manufactured E should be updated.

The field

is very important in case the finished goods are stock transferred to another plant which is a depot or a selling plant.

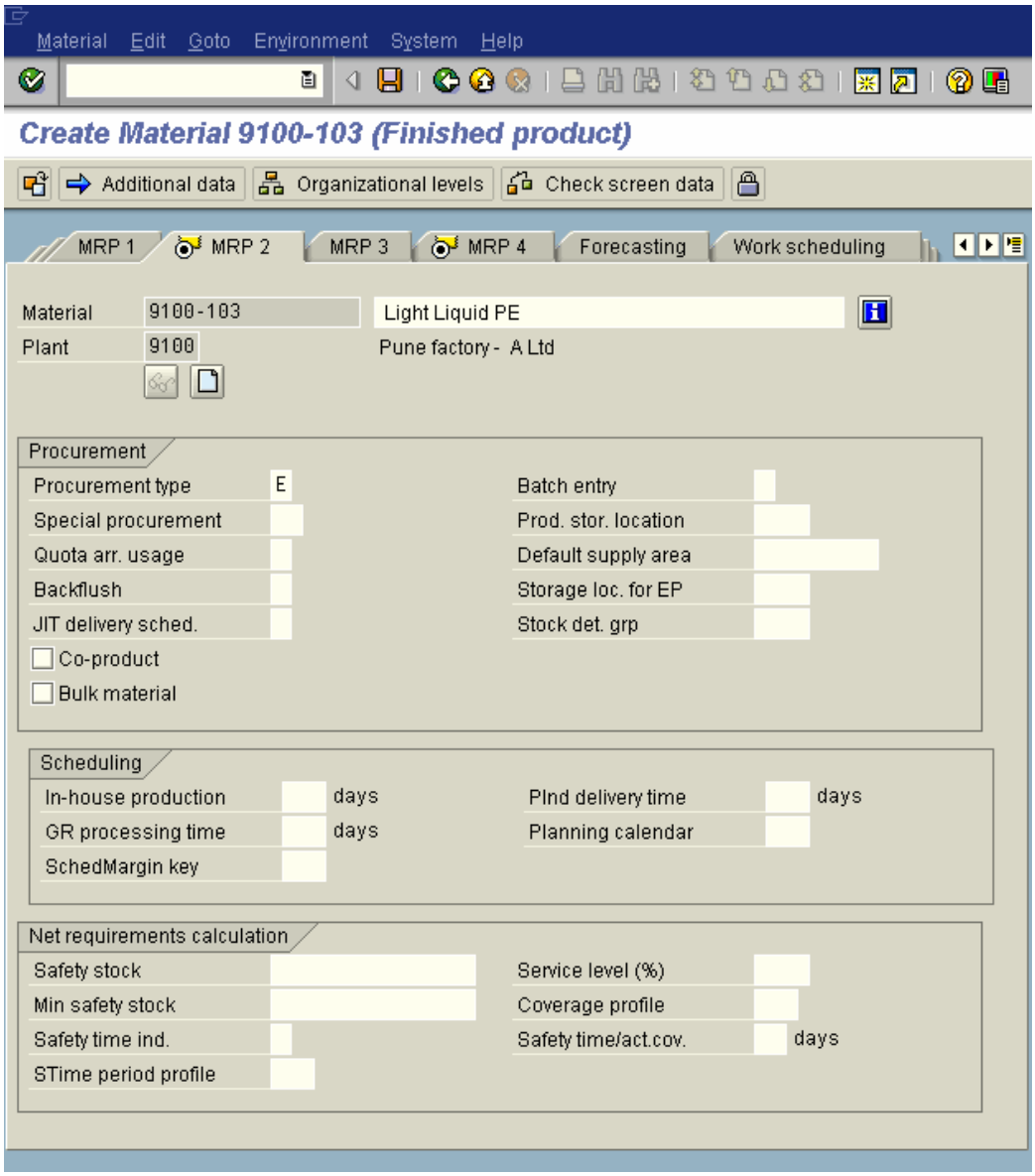
Let us take an example:-

Finished goods 9100-103 is manufactured in plant 9100. The Bill of Material and Master recipe are maintained in plant 9100. Therefore the standard cost estimate is calculated in plant 9100.

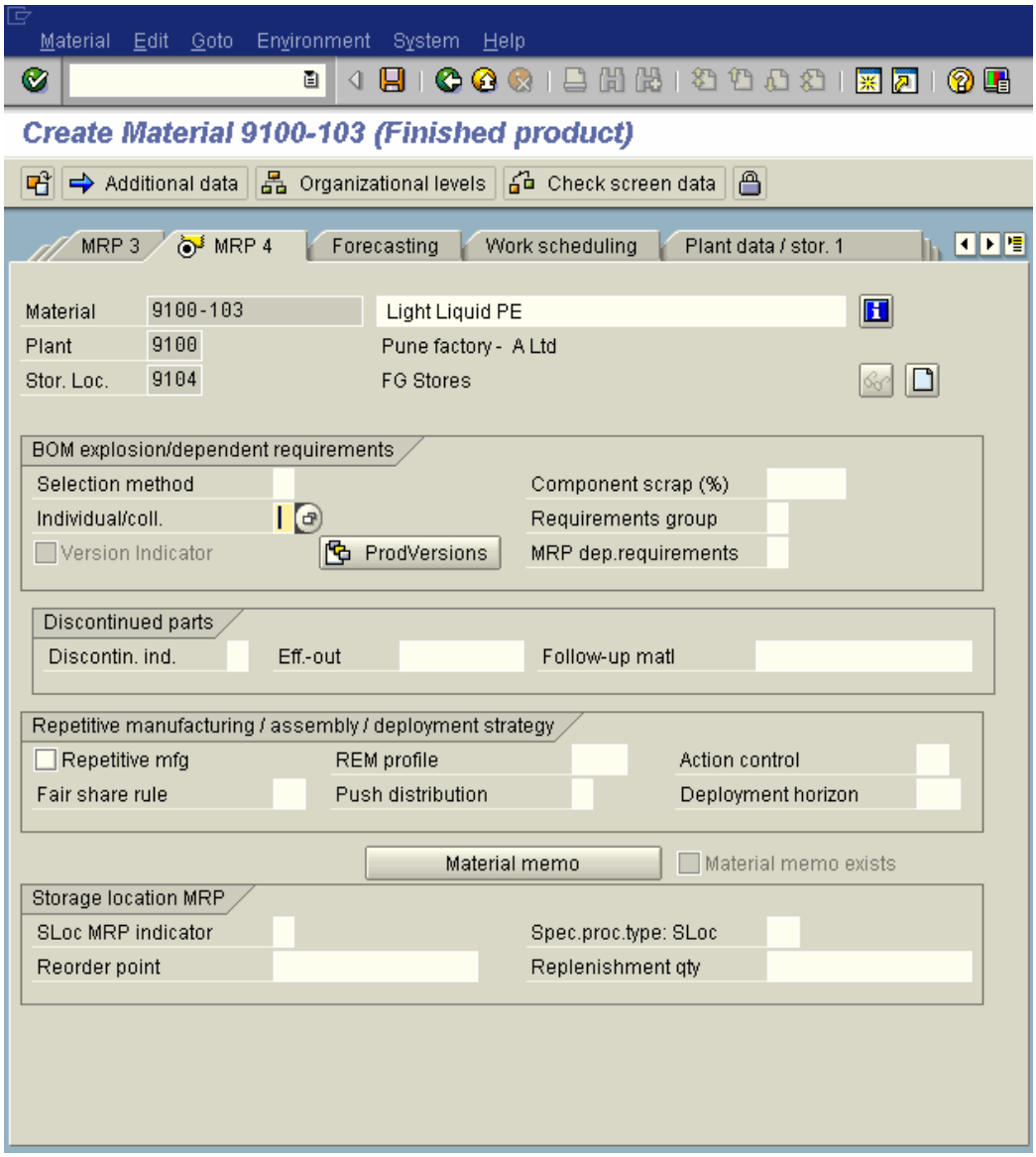
This product is stock transferred to another plant 9101 which is a sales depot. There exists no BOM and master recipe in plant 9101.
How to do you calculate the standard cost estimate in plant 9101?

Here special procurement key is of prime importance. The special procurement key is configured in material requirement planning.
It basically tells the system that plant 9101 will receive material from plant 9100.

Thus when you execute standard cost estimate for the product 9100-103 in plant 9101, if a special procurement key has been maintained in the material master in plant 9101, then the standard cost estimate is transferred from plant 9100 in plant 9101.

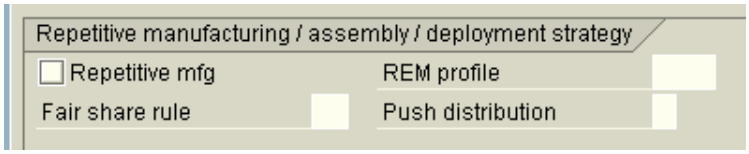

Material Edit Goto Environment System Help
Create Material 9100-103 (Finished product)
Additional data
Organizational levels
Check screen data
MRP 1
MRP 2
MRP 3
MRP 4
Forecasting
Work scheduling
Material 9100-103 Light Liquid PE
Plant 9100 Pune factory - A Ltd
Procurement
Procurement type E
Special procurement
Quota arr. usage
Backflush
JIT delivery sched.
Co-product
Bulk material
Batch entry
Prod. stor. location
Default supply area
Storage loc. for EP
Stock det. grp
Scheduling
In-house production days
GR processing time days
SchedMargin key
PInd delivery time days
Planning calendar
Net requirements calculation
Safety stock
Min safety stock
Safety time ind.
STime period profile
Service level (%)
Coverage profile
Safety time/act.cov. days

Click
MRP 4

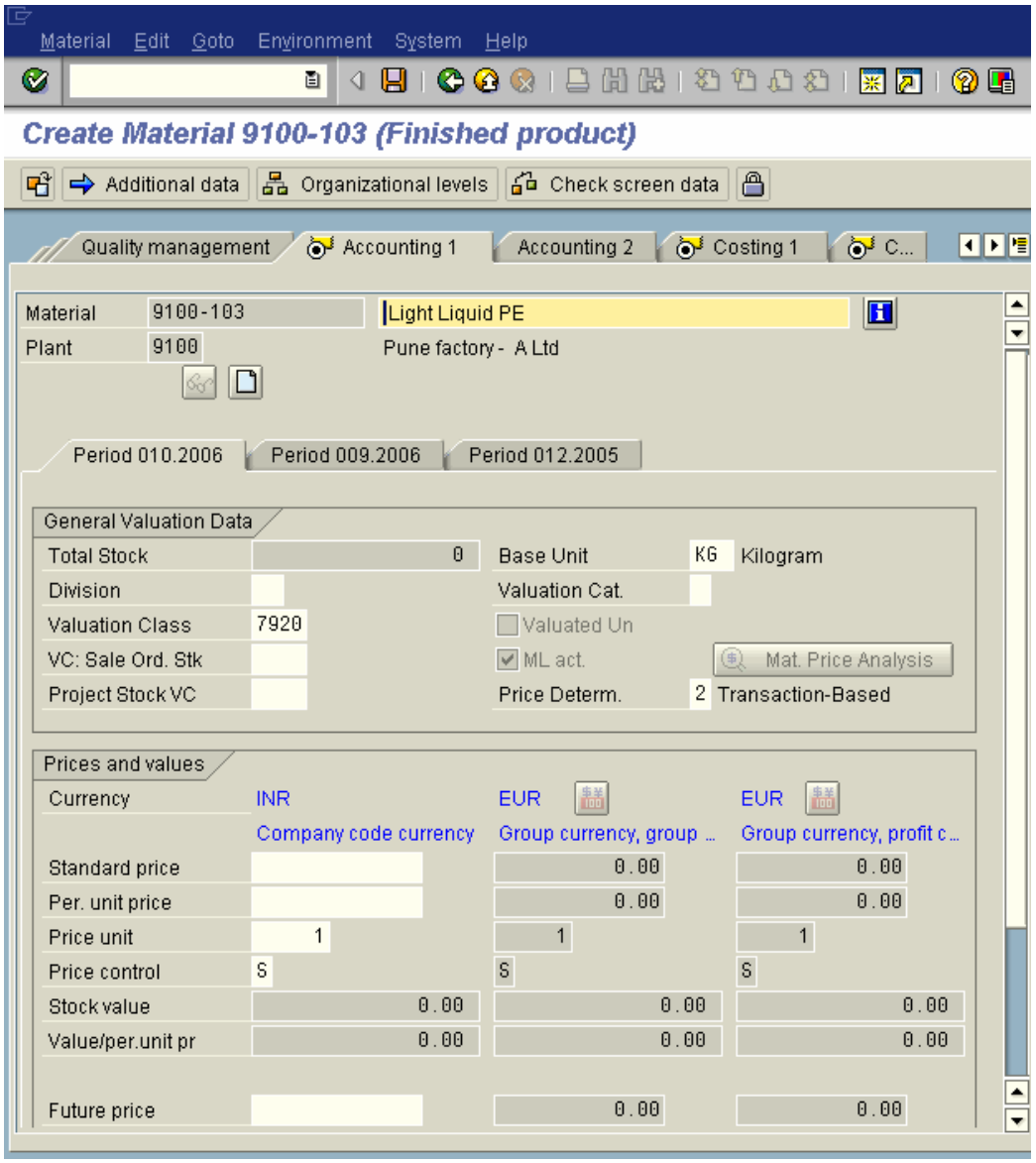


Production versions are maintained in this view. Production version is basically a combination of a Bill of Material and Master recipe. Finished goods can have various production versions. But when a standard cost estimate is executed the product cost planning component by default picks up only the first production version.

In case a product is manufactured using repetitive manufacturing then the following fields are updated.

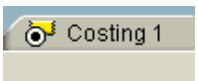


Click



Update the **valuation class** and the price control **S** for the finished goods.

No price needs to be maintained here, since the product costing module will calculate the price for the finished good.

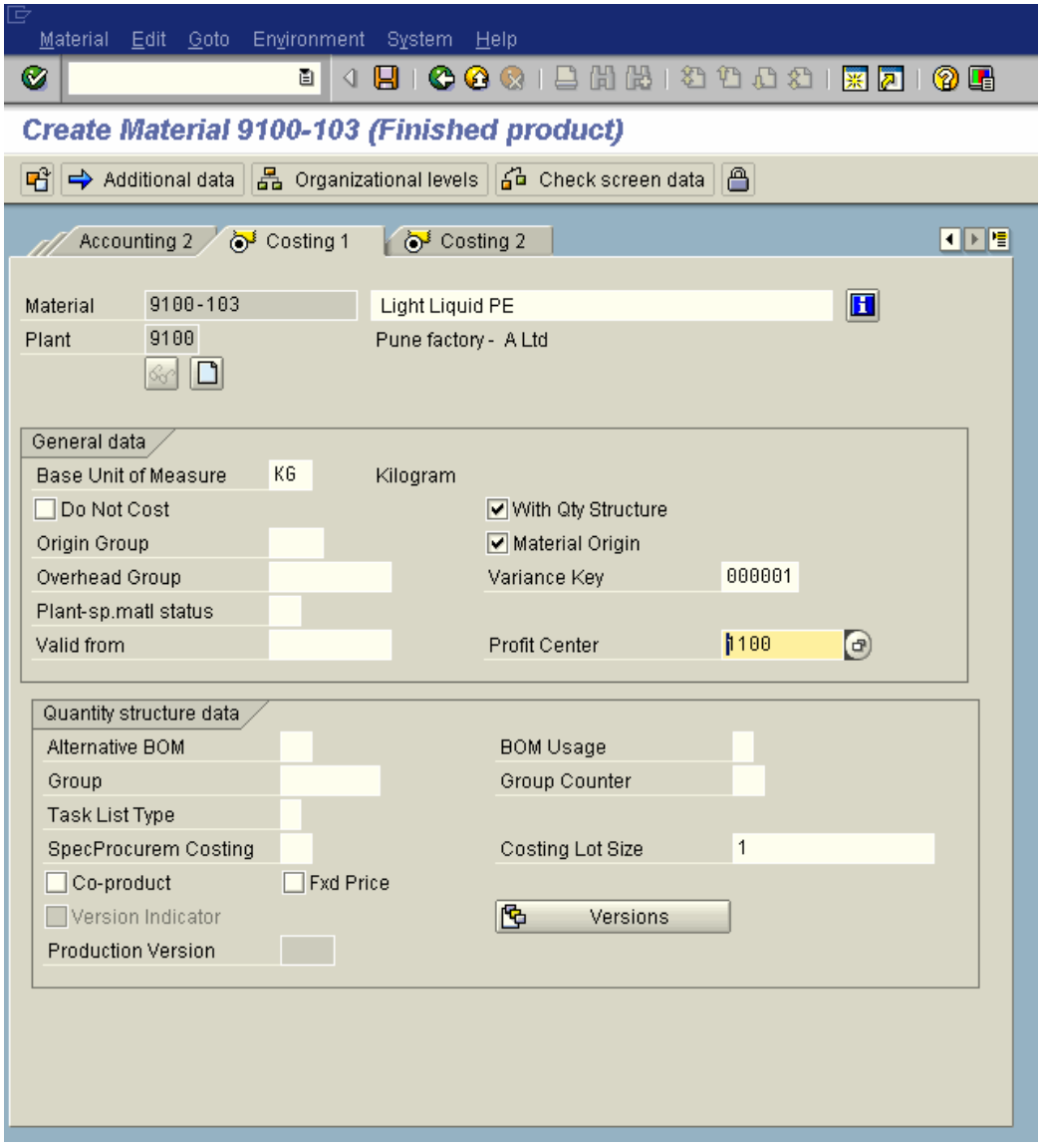
Click 

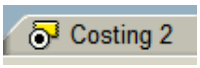
Select

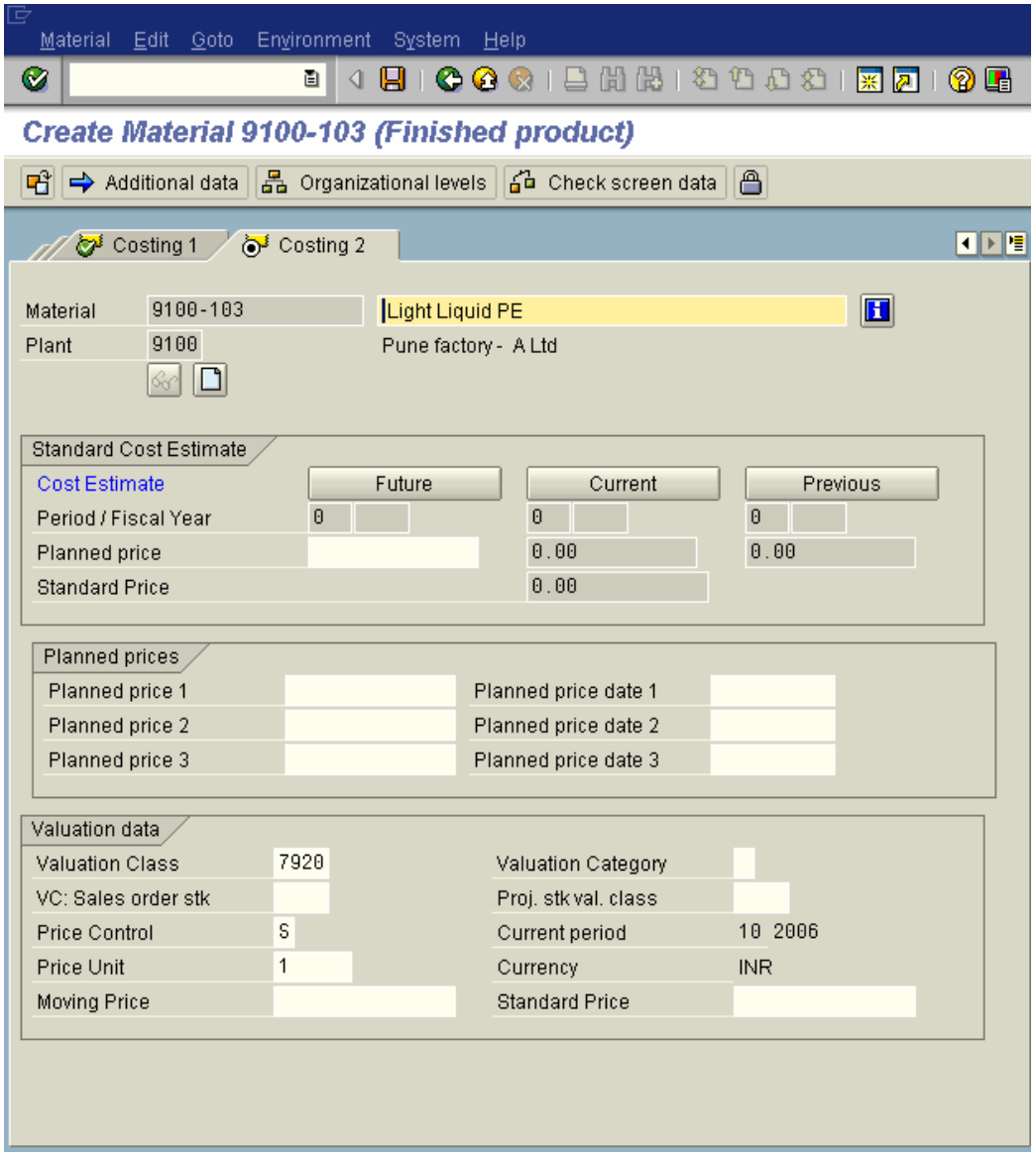
Also ensure that the variance key is in place. Normally this is defaulted based on the configuration settings maintained in **OKVW**.

Update the relevant profit center.

Also update the costing lot size: Lot size in which the product is costed.



Click 



Click on

2. Bill of Material (BOM)

A finished product is manufactured using various components i.e. raw and packaging material.
This list of component that makes the final product is called the Bill of Material. It contains the object number of each component with quantity and unit of measure. The components are known as BOM items.

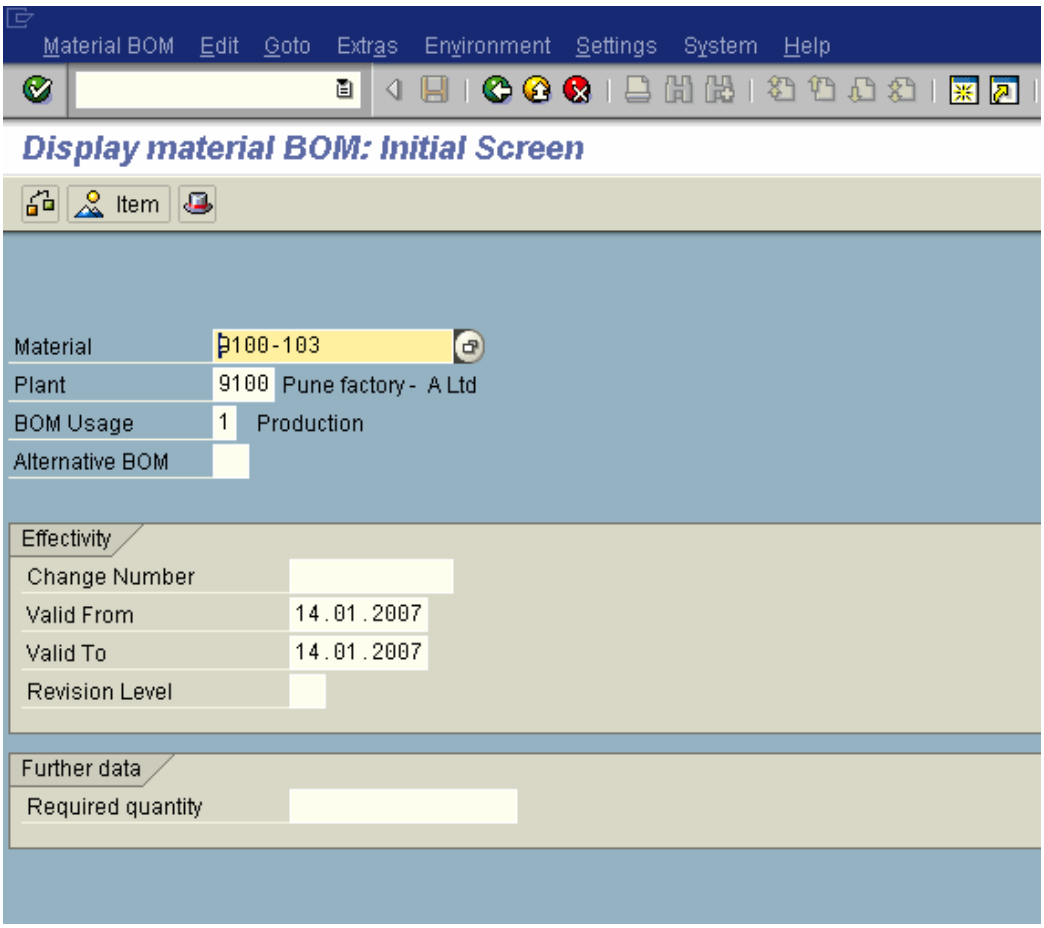
We will display a BOM which is created by the Production planning department.

Transaction code: CS03

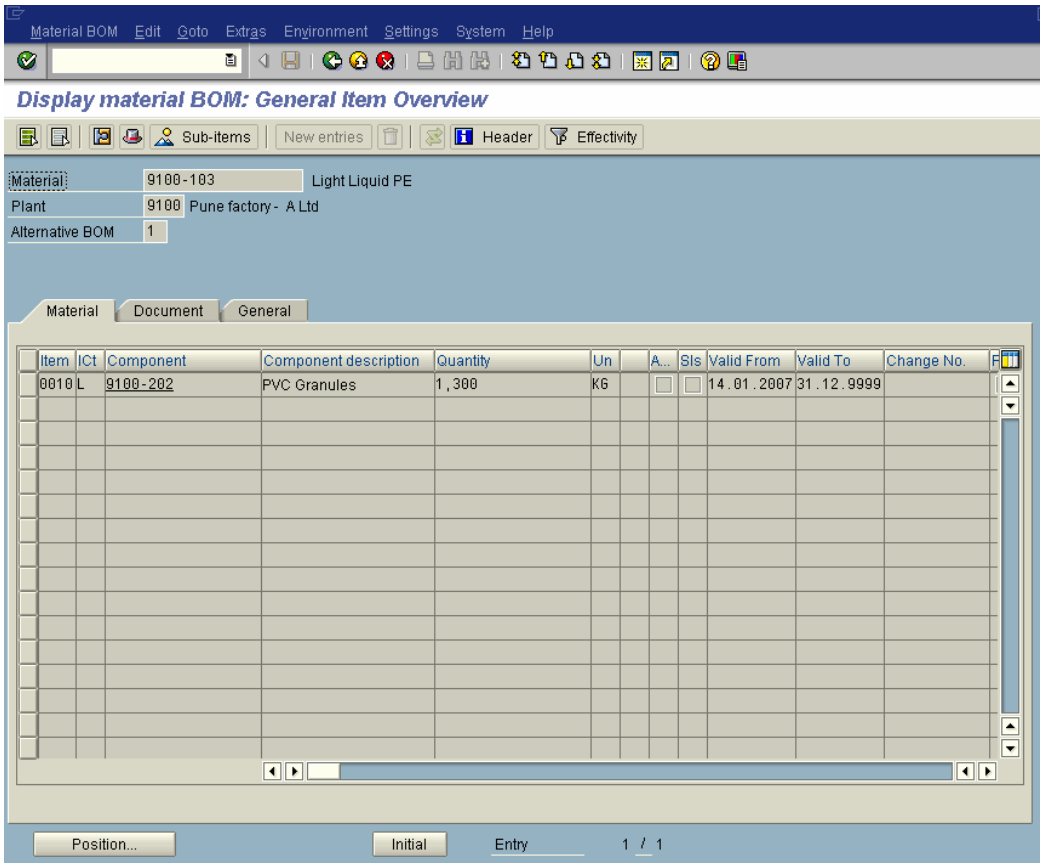
Or

SAP menu → Logistics → Production → Master Data → Bills of Material → Bill of Material → Material BOM → CS03 – Display

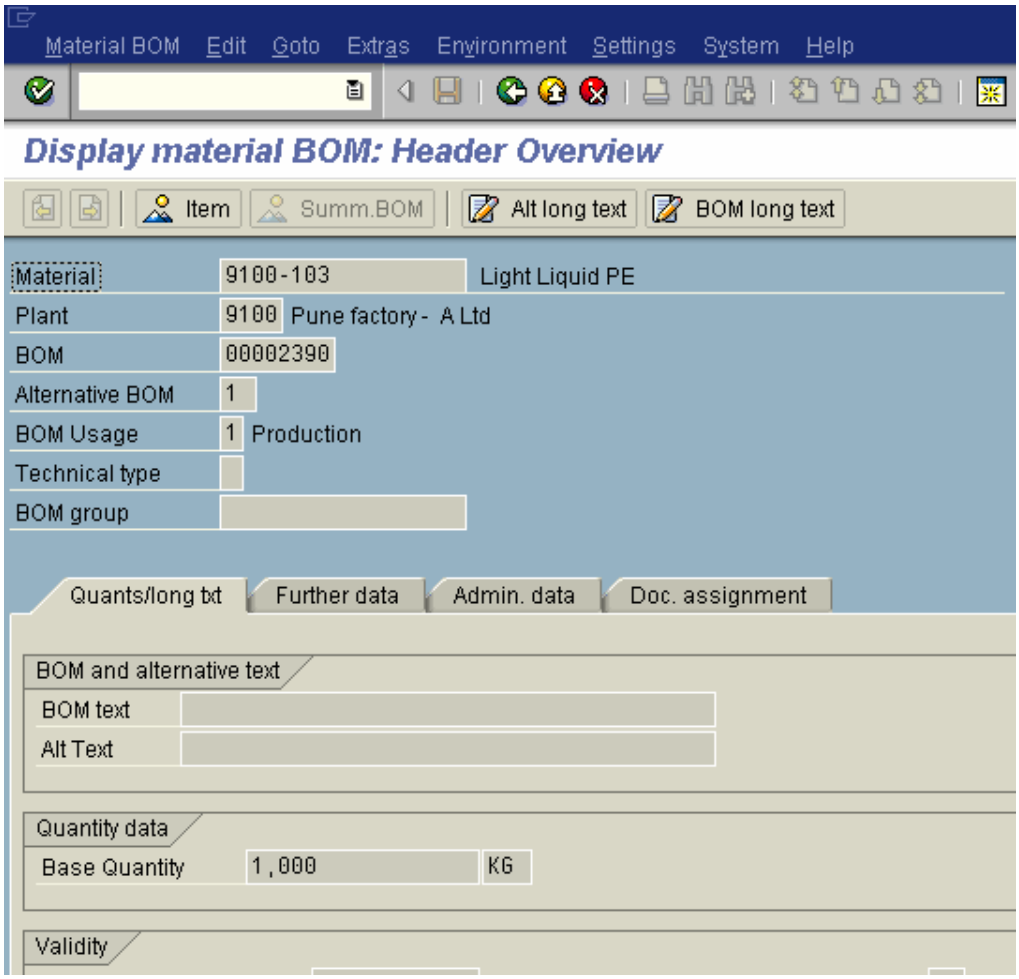
Update the following:-



Click

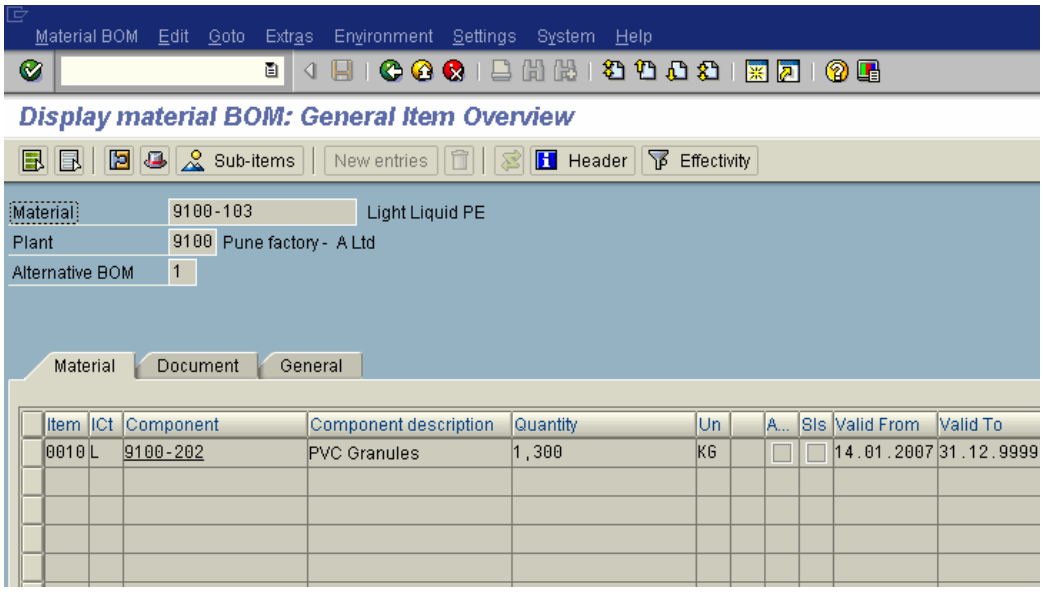


Click to see the header of the BOM



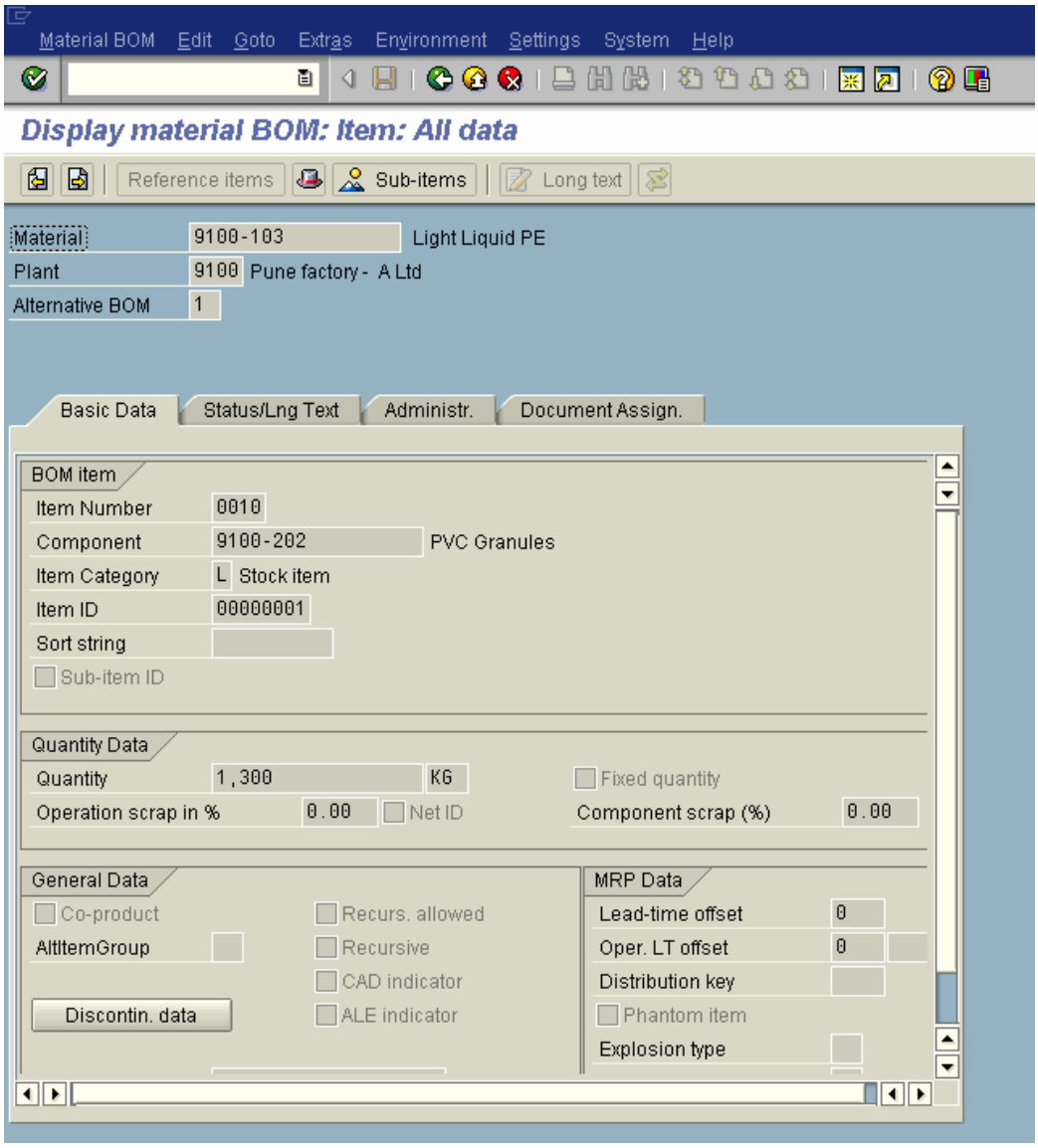
In header the Base Quantity of the finished good is mentioned. This should be in sync with the costing lot size. The base quantity is 1000 above whereas in the material master it is 1, therefore we should change the costing lot size in the material master to 1000.

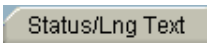
Click to the item details

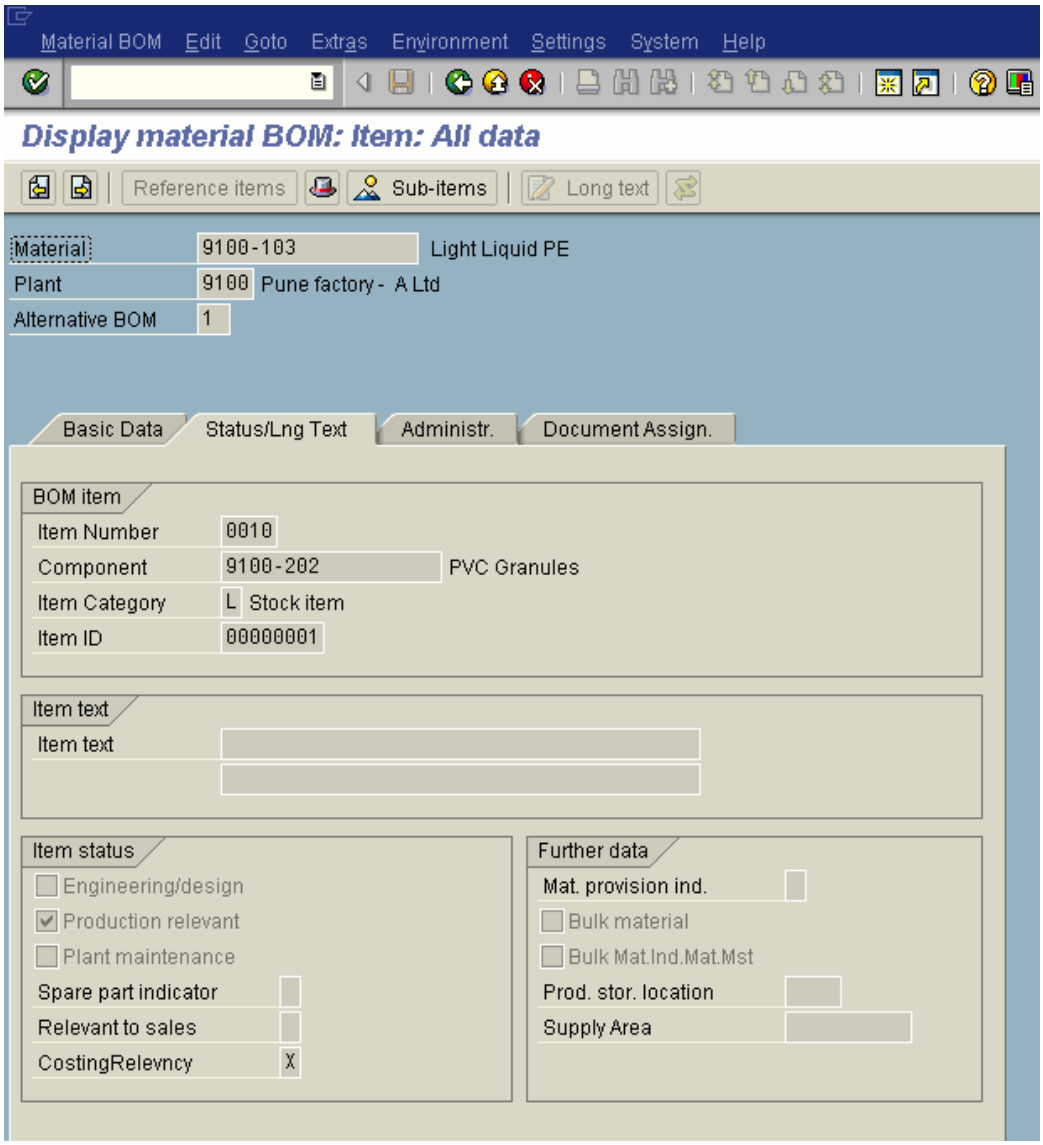


There is only one component 9100-202 used in the manufacture of 9100-103

Double click on the component


Material BOM Edit Goto Extras Environment Settings System Help
Display material BOM: Item: All data
Reference items
Sub-items
Long text
Material 9100-103 Light Liquid PE
Plant 9100 Pune factory - A Ltd
Alternative BOM 1
Basic Data
Status/Lng Text
Administr.
Document Assign.
BOM item
Item Number 0010
Component 9100-202 PVC Granules
Item Category L Stock item
Item ID 00000001
Sort string
Sub-item ID
Quantity Data
Quantity 1,300 KG
Fixed quantity
Operation scrap in % 0.00
Net ID
Component scrap (%) 0.00
General Data
Co-product
Recurs. allowed
AltItemGroup
Recursive
CAD indicator
Discontin. data
ALE indicator
MRP Data
Lead-time offset 0
Oper. LT offset 0
Distribution key
Phantom item
Explosion type

Click 
Status/Lng Text



The Costing relevancy selection is important. This selection controls whether the component is relevant for product cost estimate or not.

3. Activity prices maintained for cost centers

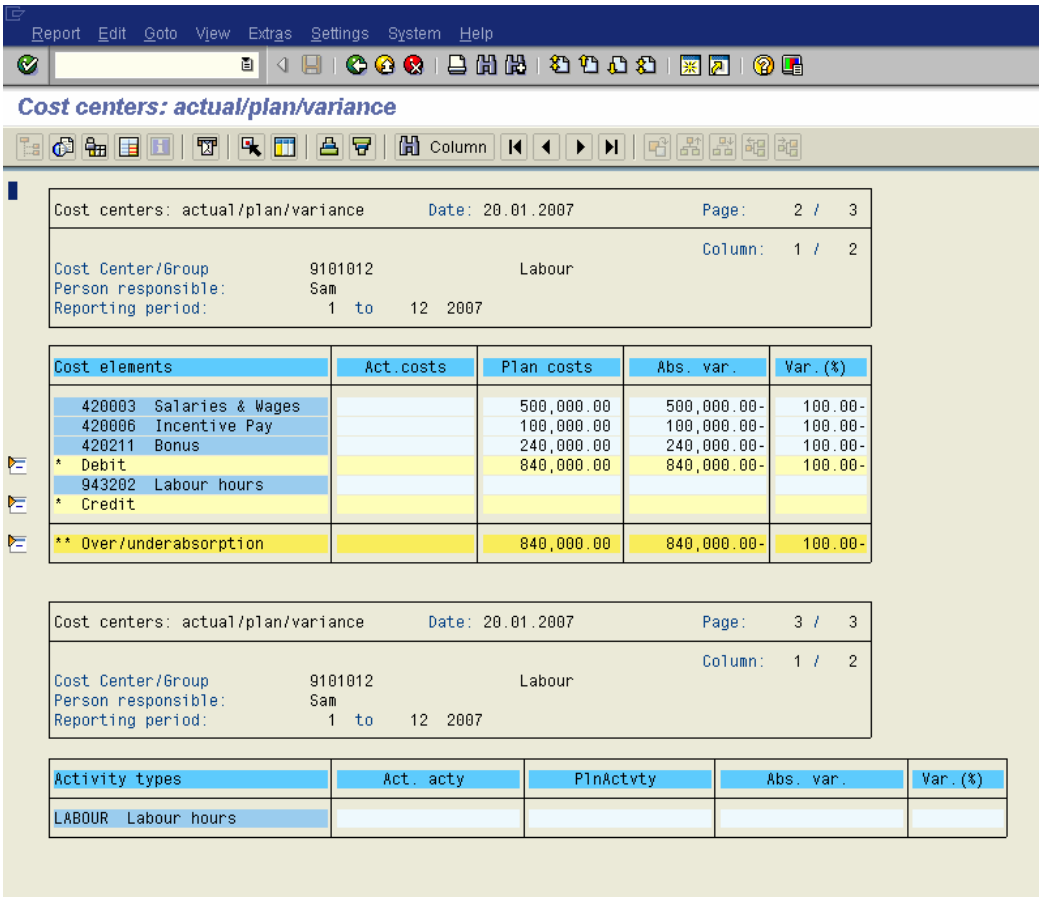
The activities typically carried on a product could be as follows:-
Machine activity
Labour activity
Quality checking activity

Activity prices are maintained for each of the above activity. These activities are carried out by various production cost centers.

The activity costs are absorbed into the product as follows:-

Activity Qty (mentioned in the recipe or routing) X activity price (maintained for activity type and cost center combination)

Before we maintain let us see a cost center report for cost center 9101012 using transaction code **S_ALR_87013611** - Plan/Actual Comparisons



The total cost planned on the cost center is 840, 000.

This cost needs to be absorbed into the product.

Now let us proceed for updating the activity price

Let us see the how the activity prices are maintained in the cost center accounting module:

Transaction code: KP26

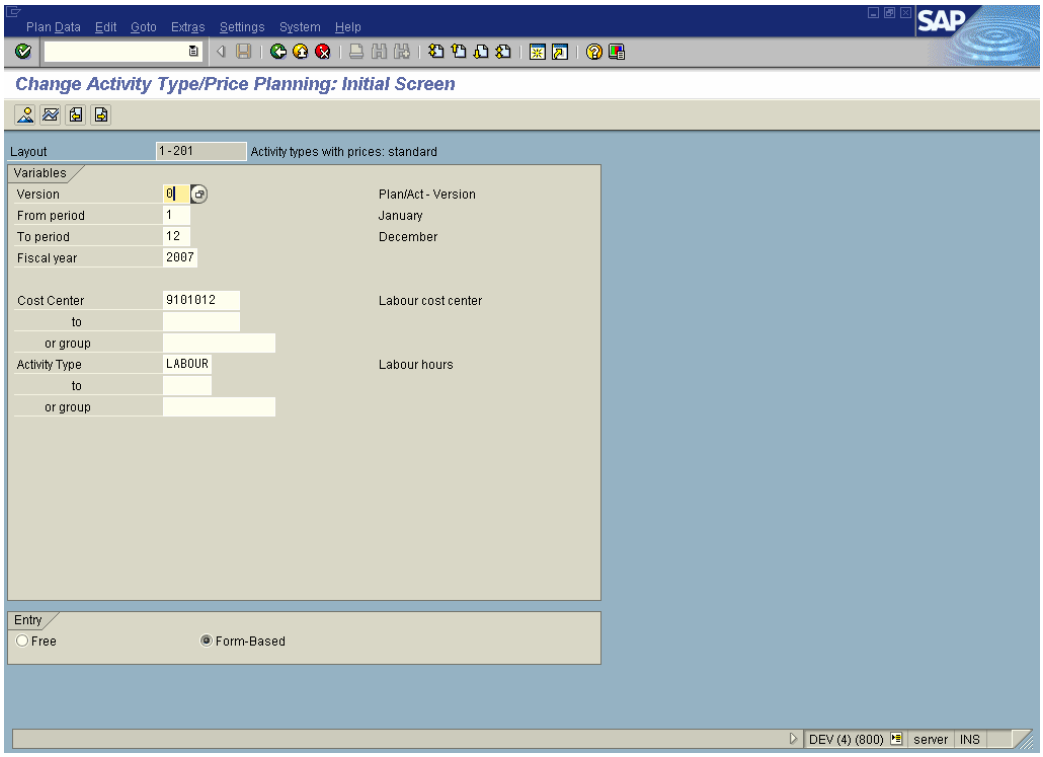
Or

Menu Path:

SAP Menu → Accounting → Controlling → Cost Center Accounting → Planning → Activity Output/Prices → KP26 – Change

We will maintain plan activity price for activity labour and the labour cost center for the year 2007.

Update the following:-



Click

Update the following:-

The planned labour hours (activity) for the year 2007 is 70,000 hours.

The activity price calculated works out to 12/- which is as follows:-

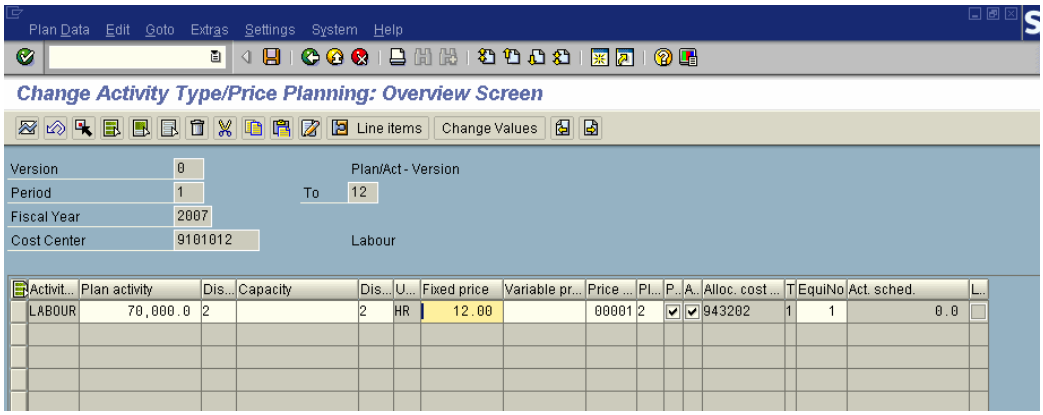
Activity price = Total cost on Labour cost center

Planned activity

= 840,000

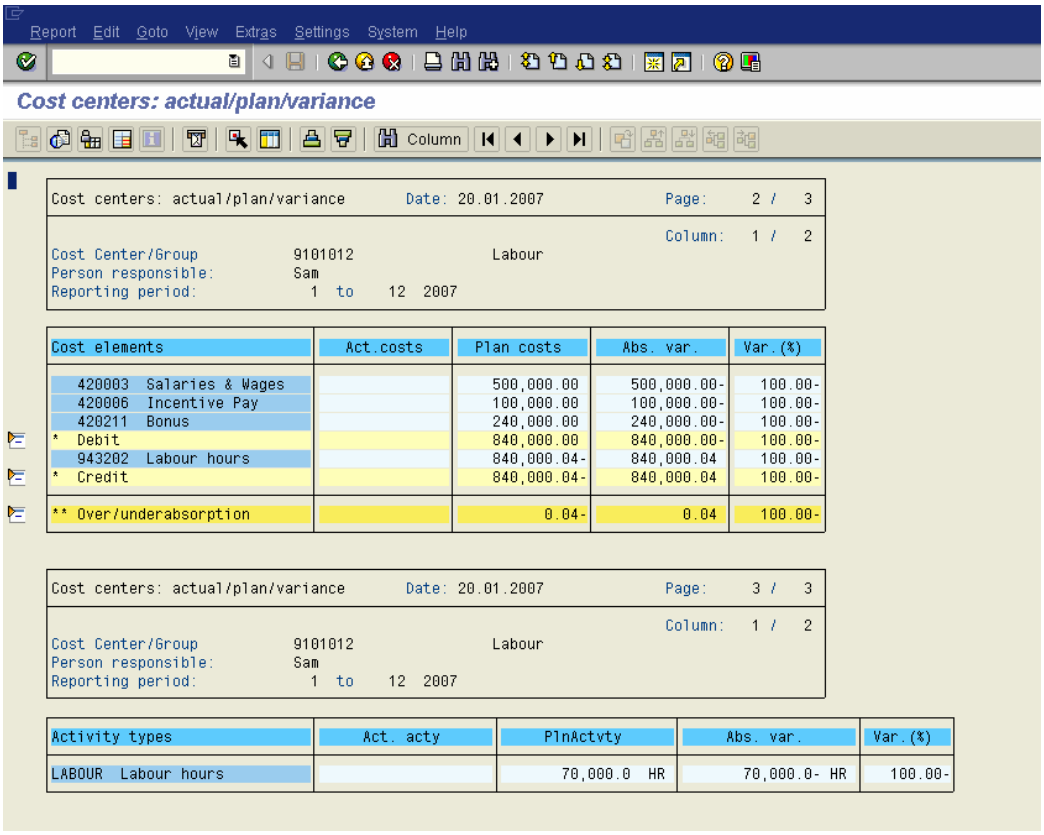
70,000
= 12/-

Let us update that as below



Click on

Let us now again see the cost center report using transaction code **S_ALR_87013611** - Plan/Actual Comparisons



The cost of 840,000/- is now absorbed, showing 0.04- balance.

The plan activity of 70,000 hr is also updated on the cost center.

The above method is manually updating activity prices in the cost center planning.

Another option is to have system calculate activity price through system. You only maintain the activity output 70,000 hrs through the transaction KP26.

The activity price calculation is executed through transaction code **KSPI** - Price Calculation.

System will automatically calculate price as follows:-

$$\text{Activity price} = \frac{\text{Total cost planned on the cost center 9101012}}{\text{Activity output}}$$

$$= \frac{840{,}000}{70{,}000}$$

= 12/- per hour

4. Resource/ Work center

A Resource is an organizational unit that defines where and when an operation should be carried out. It has an available capacity. The activity performed here is valuated by charge rates which are determined by cost centers and activity types.

A **Resource** is a master data defined when process orders are used. Process orders are used for process industry.

The same master data is defined as **Work center** when production orders are used.

A Resource/Work center is linked to a cost center.

This master data is maintained by the PP guys.

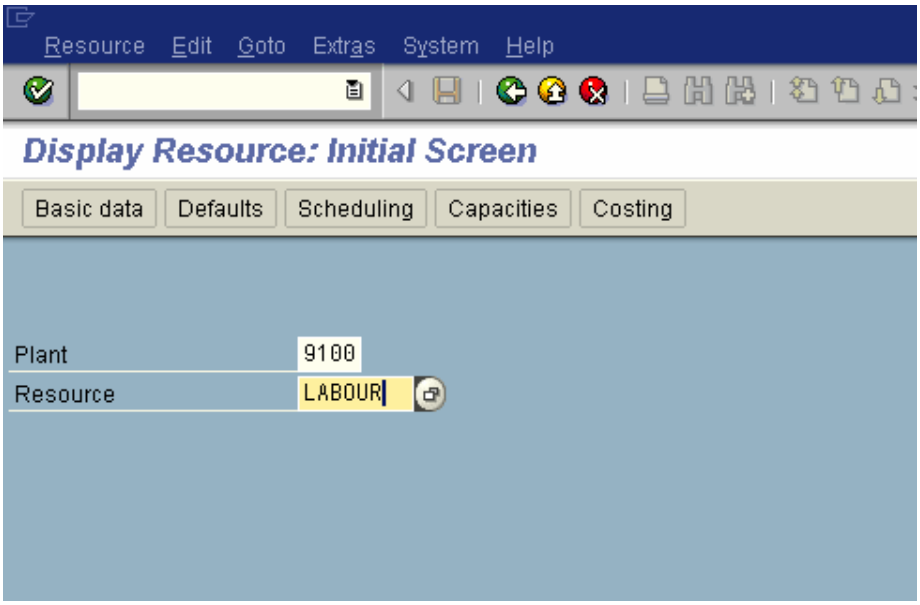
The PP and CO teams have to jointly work to define and link the resource and cost center.

Let us display a resource.

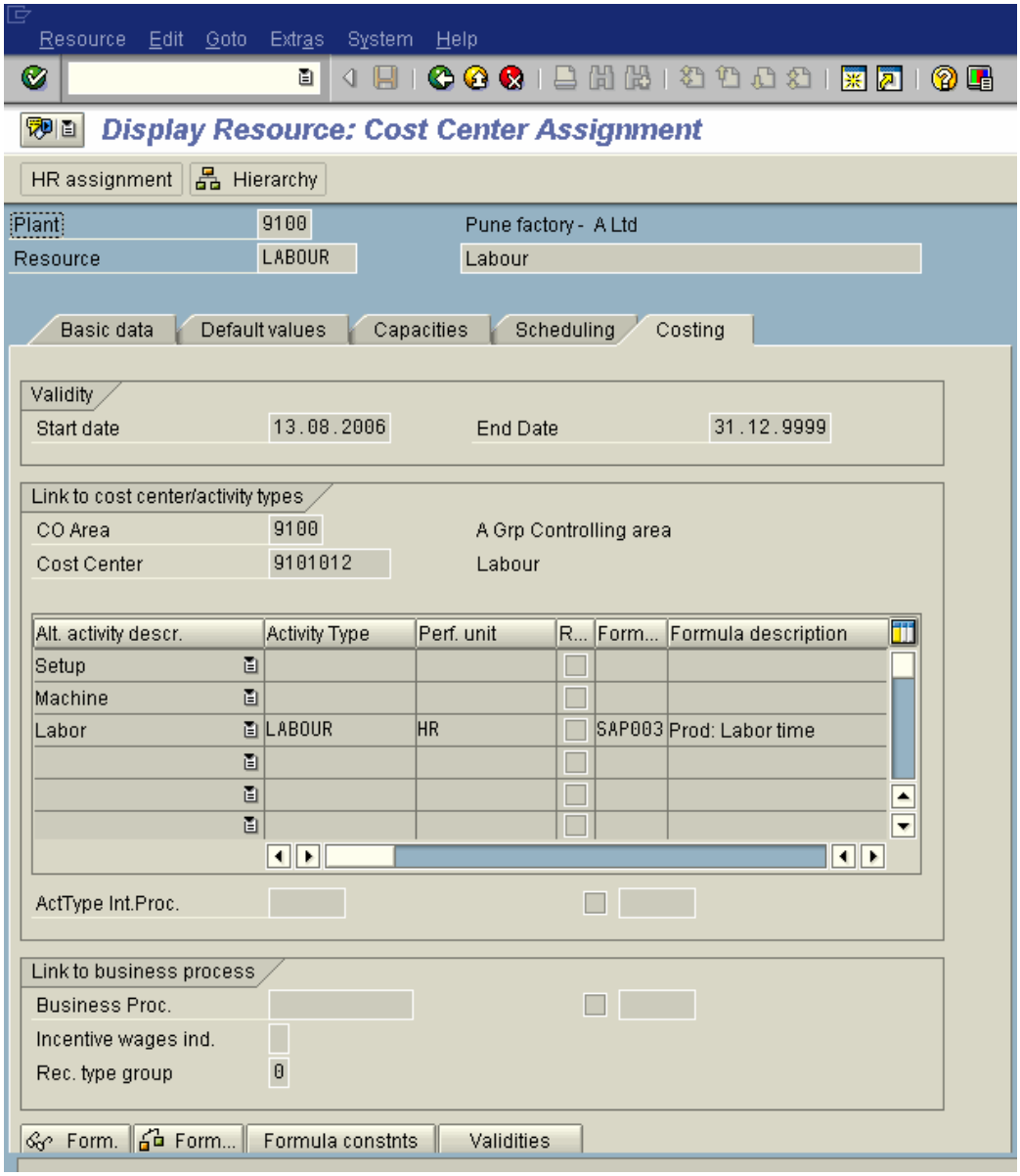
Transaction code: CRC3

SAP menu → Logistics → Production – Process → Master Data → Resources → Resource → CRC3 – Display

Update the following:-



Click Costing

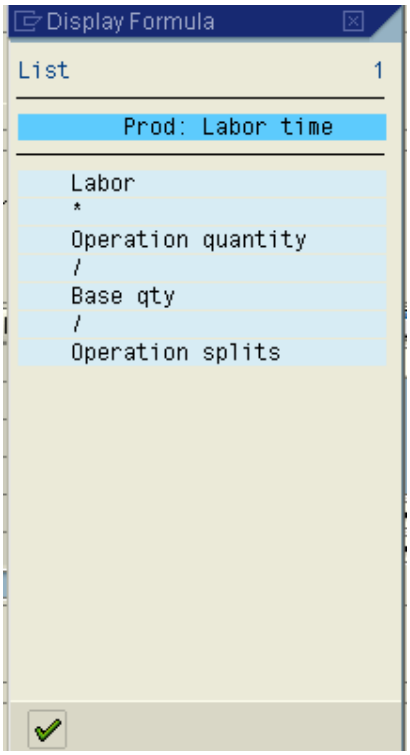


The resource **LABOUR** is linked to cost center **9101012** and activity type **LABOUR**

It is only possible to maintain the cost center and activity here, if it is maintained in the earlier step KP26.

Position the cursor on SAP003

Click Form.



A formula maintained above helps in proportionately calculating the number of hours required.

E.g. The number of hours required for a base quantity of 1000 kgs is 10 hours.

If the manufacturing batch size is 5000 kgs then as per the above formula the number of labour hours is calculated as follows:-

$$= 10 \text{ hrs} \times \frac{5000 \text{ kgs}}{1000 \text{ kgs}}$$

$$= 50 \text{ hrs}$$

It is essential to verify that formula is correctly defined.

5. Master Recipe/ Routing

A Master Recipe is a description of a specific process in the process industry that does not relate to a specific process order.
It is used for producing materials.

The same master data is called as Routing when production orders are used. Of course the maintenance of the 2 master data is through different transaction codes. Master data to be maintained in both the cases are more or less same.

The master recipe is maintained by the PP team.

Let us display the master recipe maintained for the finished product.

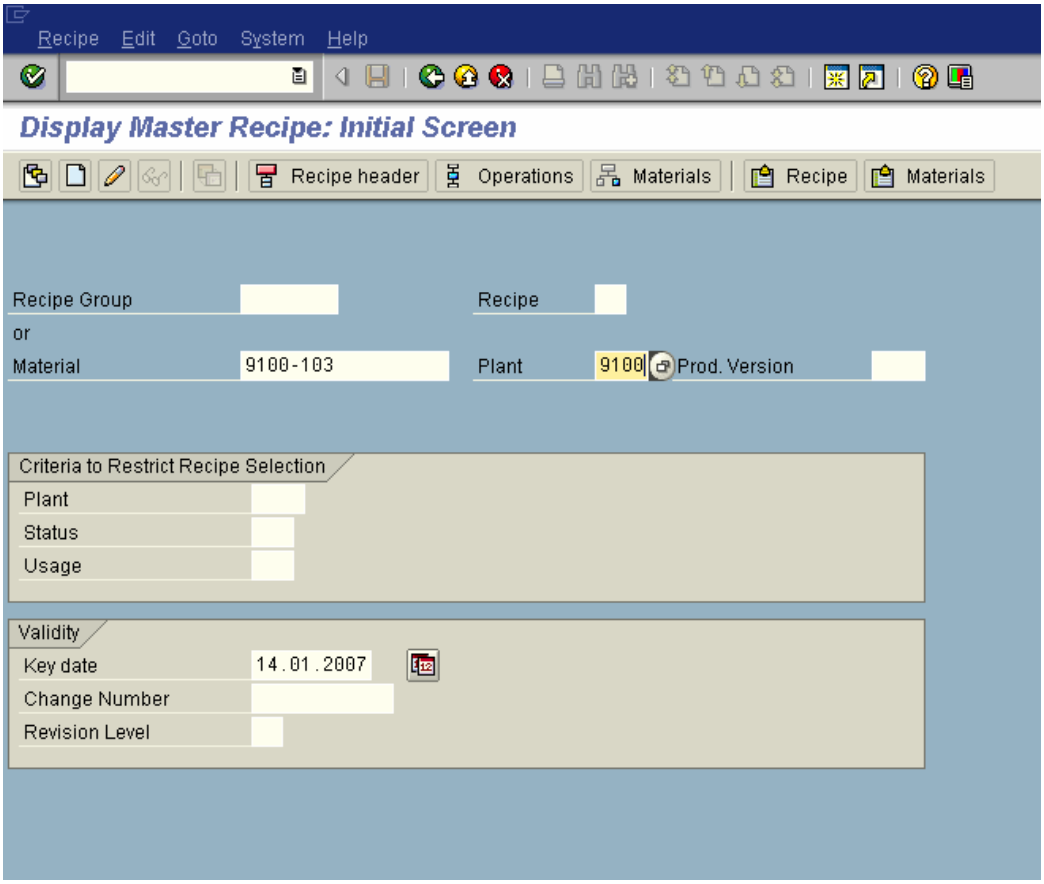
Transaction code: C203

Or

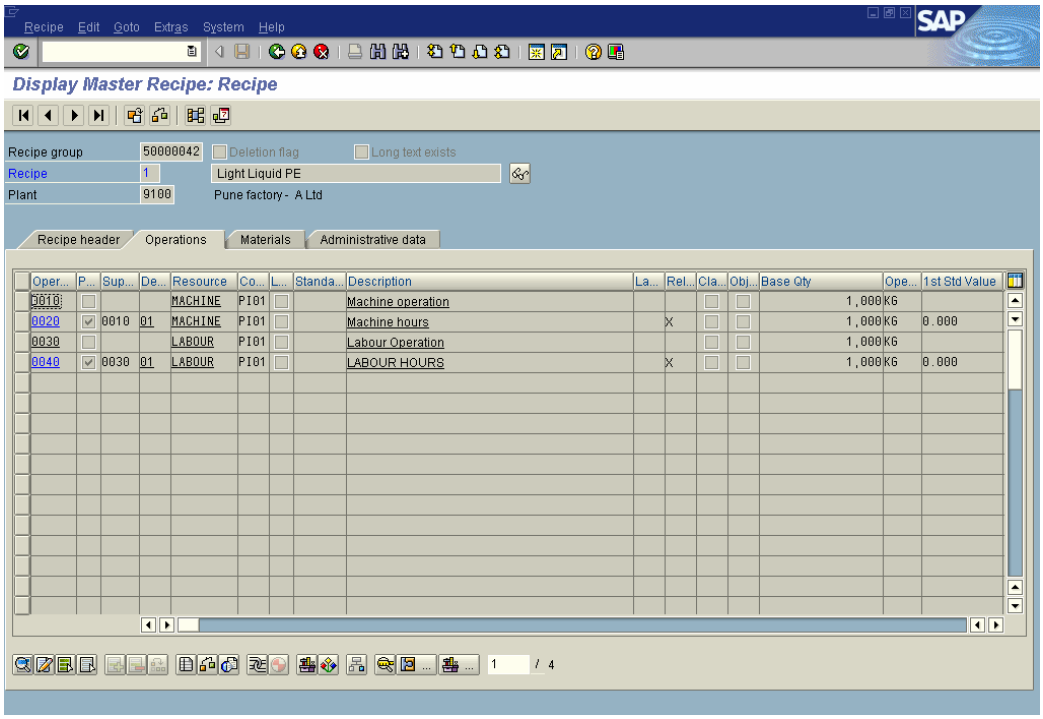
Menu Path:

SAP menu → Logistics → Production – Process → Master Data → Master Recipes → Recipe and Material List → C203 – Display

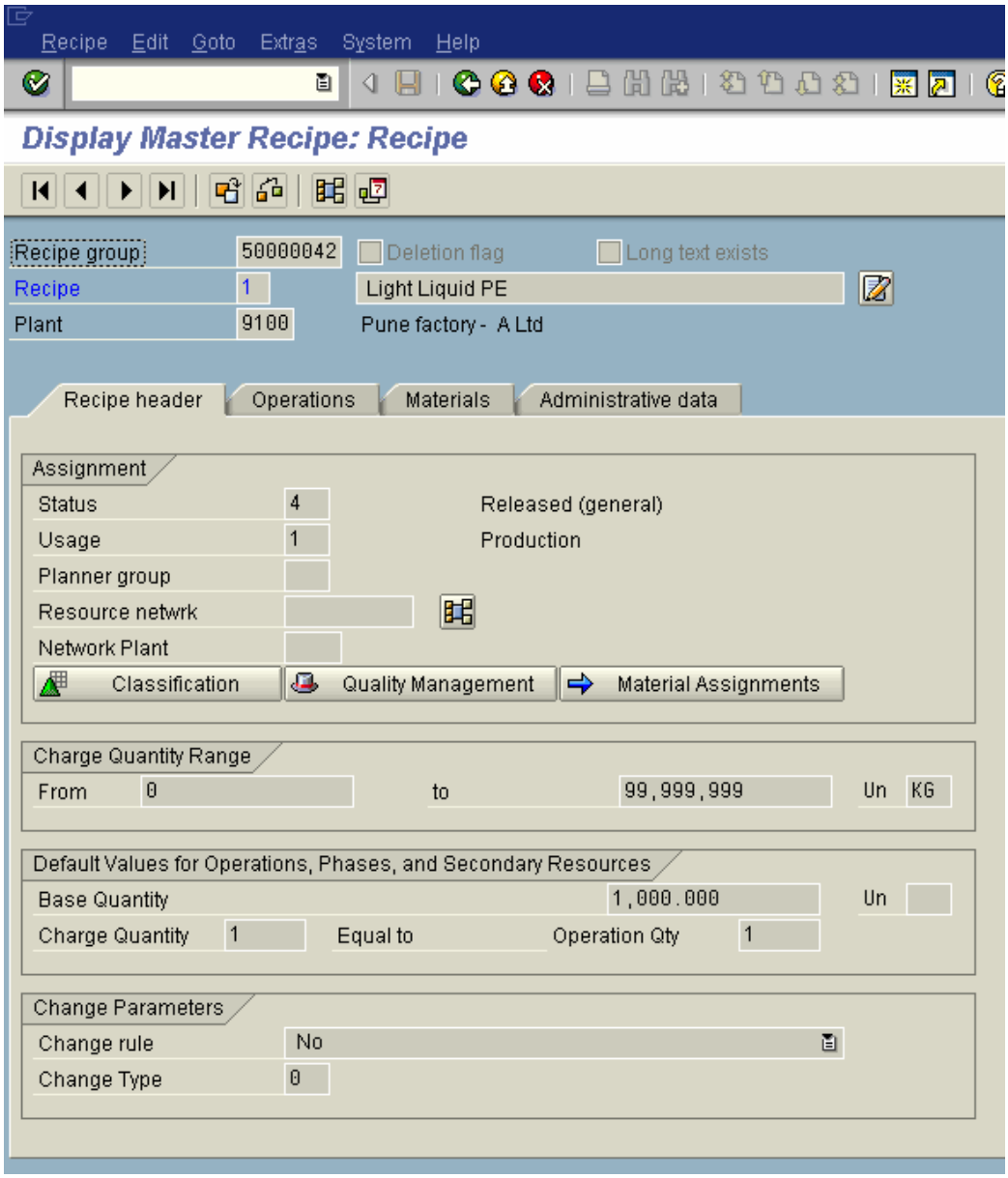
Update the following:-



Click

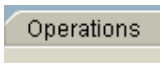

Recipe Edit Goto Extras System Help
SAP
Display Master Recipe: Recipe
Recipe group 50000042 Deletion flag Long text exists
Recipe 1 Light Liquid PE
Plant 9100 Pune factory - A Ltd
Recipe header Operations Materials Administrative data
Oper... P... Sup... De... Resource Co... L... Standa... Description La... Rel... Cla... Obj... Base Qty Ope... 1st Std Value
0010 MACHINE PI01 Machine operation 1,000 KG
0020 0010 01 MACHINE PI01 Machine hours X 1,000 KG 0.000
0030 LABOUR PI01 Labour Operation 1,000 KG
0040 0030 01 LABOUR PI01 LABOUR HOURS X 1,000 KG 0.000
1 / 4

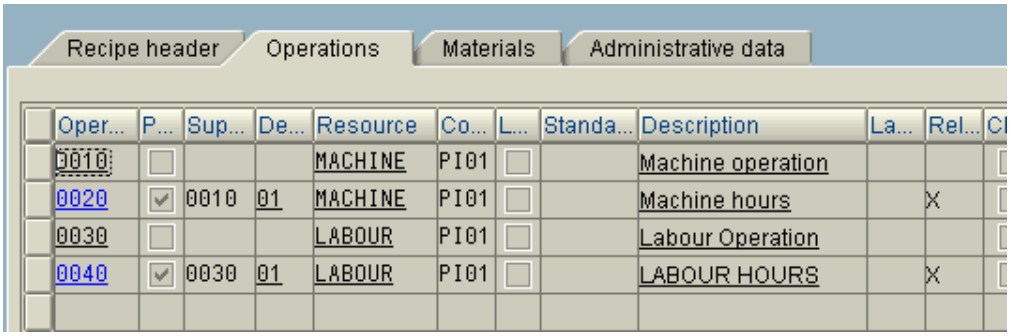
Click on the
Recipe header



The **status** of the master recipe must be **4** and **usage 1**.

Also check the Base quantity of the master recipe.

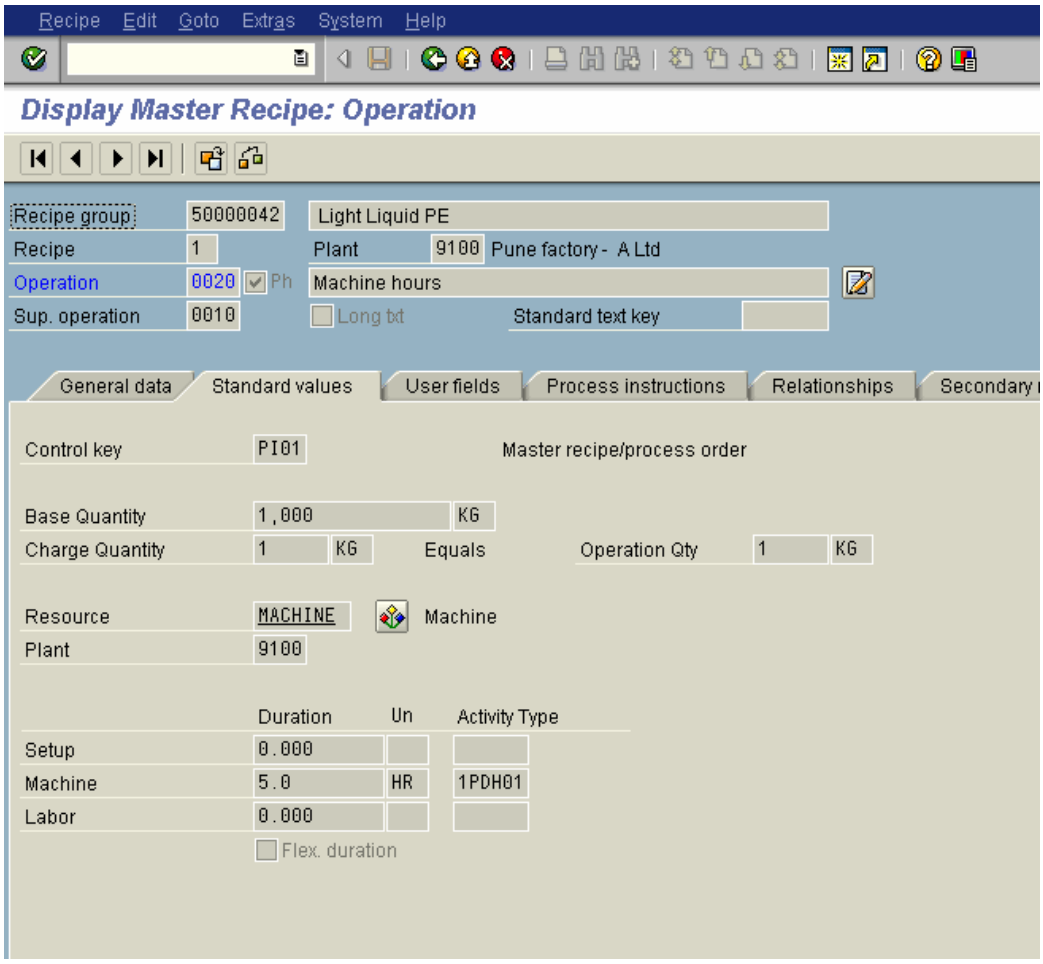
Click on 



Oper...	P...	Sup...	De...	Resource	Co...	L...	Standa...	Description	La...	Rel...	Cl
0010	☐			MACHINE	PI01	☐		Machine operation			
0020	☑	0010	01	MACHINE	PI01	☐		Machine hours		X	
0030	☐			LABOUR	PI01	☐		Labour Operation			
0040	☑	0030	01	LABOUR	PI01	☐		LABOUR HOURS		X	

There are 2 operations in the recipe
1) Machine hours
2) Labour hours.

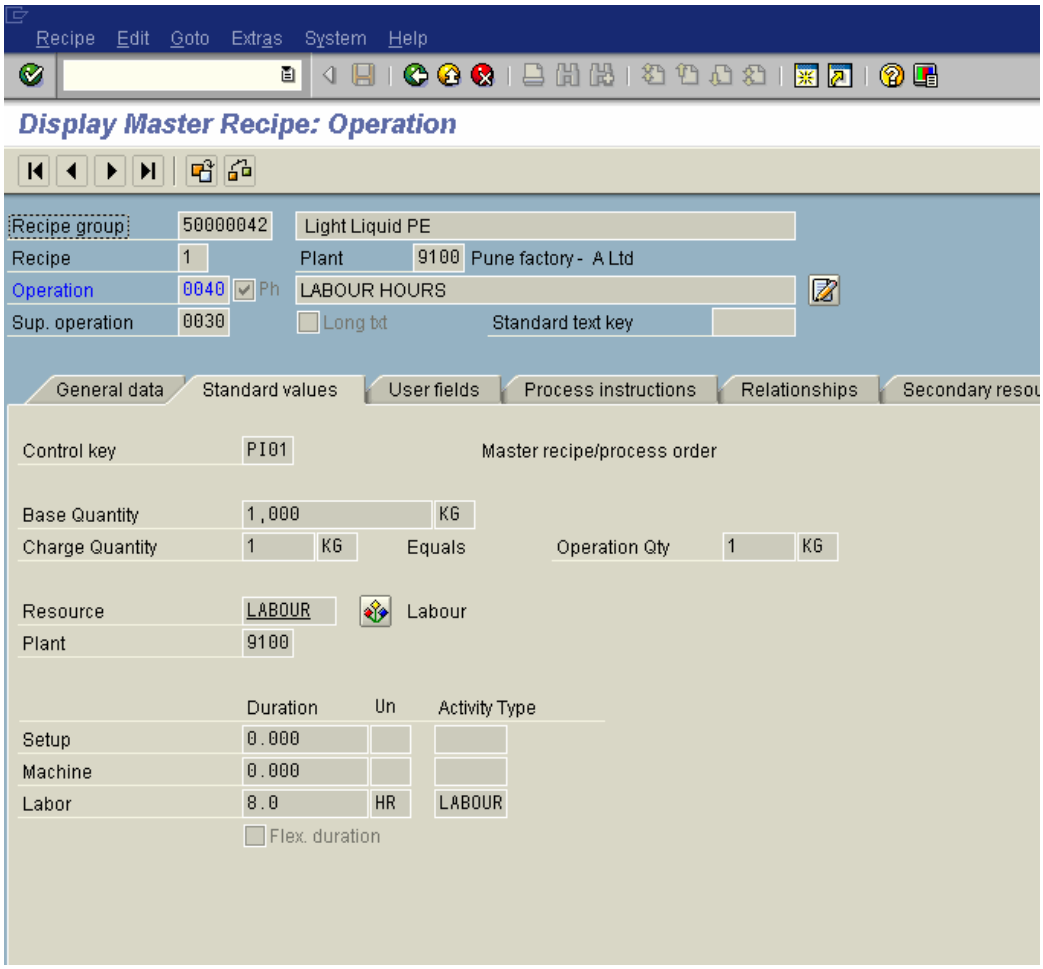
Double click



You find the activity type 1PDH01 is defaulted automatically from the resource **MACHINE**. The number of machine hours required for base quantity of 1000 KG - 5 hrs is maintained here.

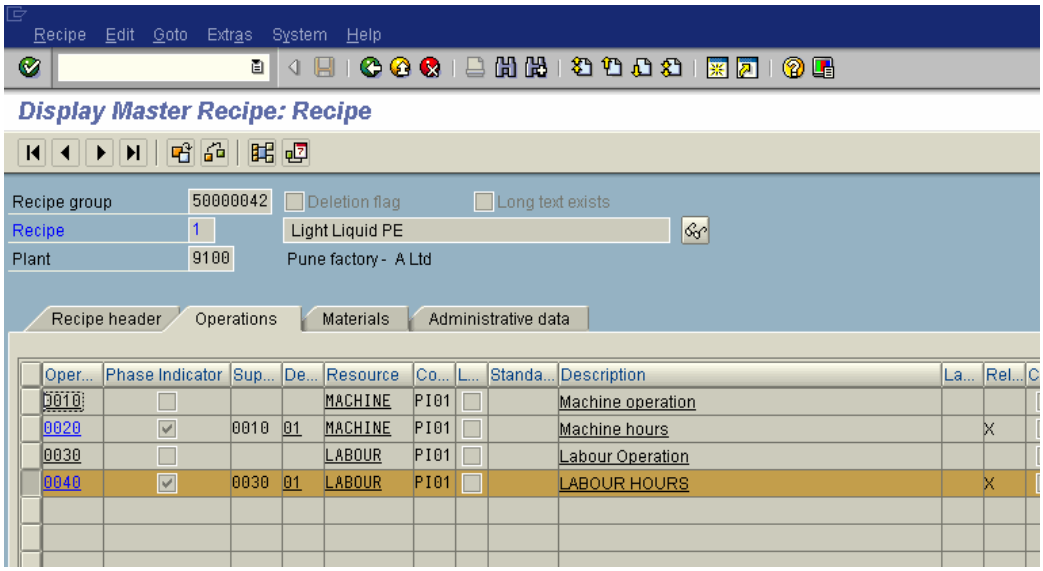
Click

Double click



You find the activity type LABOUR is defaulted automatically from the resource **LABOUR**. The number of Labour hours required for base quantity of 1000 KG - 8 hrs is maintained here.

Click



Also note the costing Relevancy indicator in the master recipe above

This determines that the operations are relevant for costing.

6. Production versions

A production version is a production technique that can be used to produce a material.

It is a combination of a BOM and Recipe/Routing.

Let us take an example of what can be the difference between 2 production versions to manufacture the same product-

1) Production version 1

BOM - 1
Master recipe – 1

Master recipe 1 uses fully automated machines with latest technology. They are high speed machines where the processing time is less i.e. 2 hours

Production version 1 uses BOM 1 and Master recipe 1 to manufacture the product.

2) Production version 2

BOM -1
Master recipe – 2

Master recipe - 2 uses machine with old technology which requires more processing time and also is not automated therefore some labour operation is also required.

The production version 2 uses BOM 1 and master recipe 2 to manufacture the product.

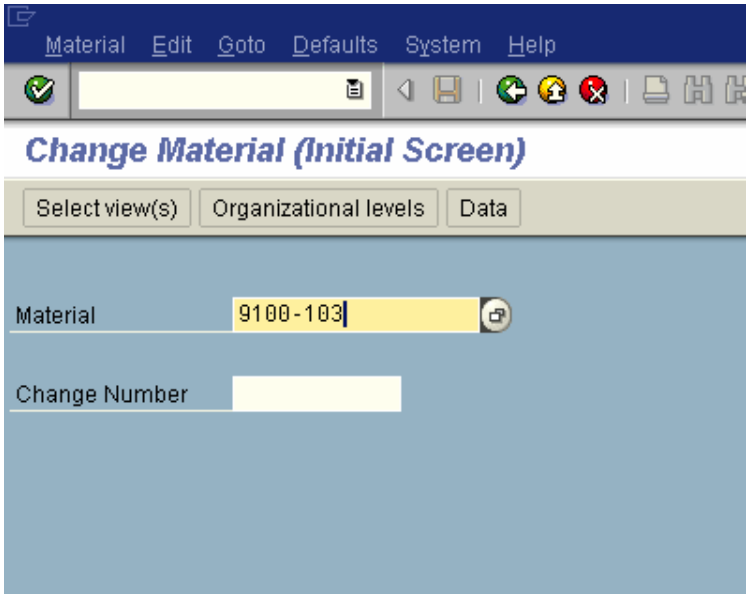
You will have a question in mind why do we require the second production version? Why not manufacture all the products using production version 1?

The answer to this question is there is limited capacity available on production version 1. Therefore production version 2 needs to be used due to capacity constraints in production version 1.

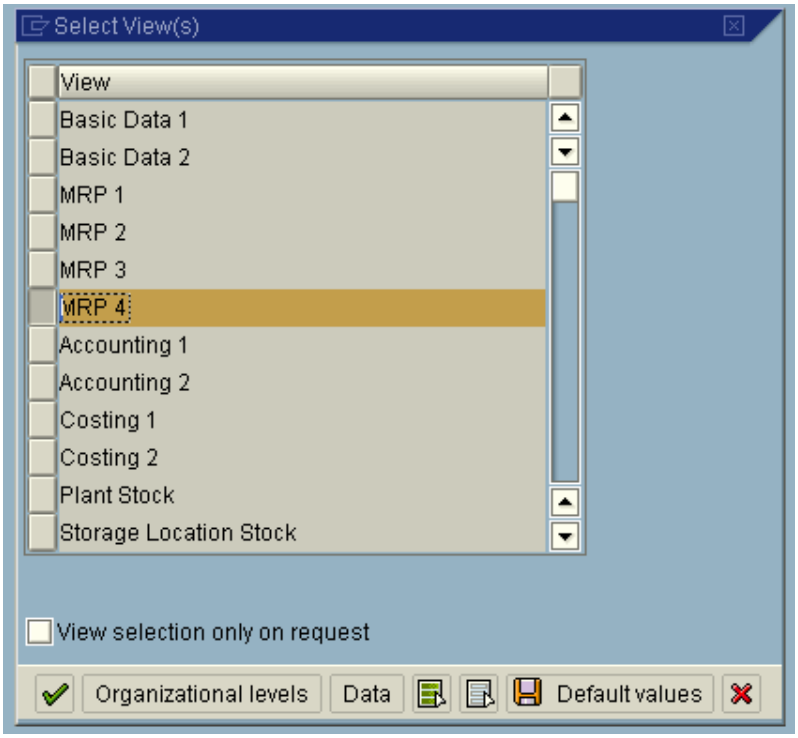
Production versions are maintained by the PP guys.

Let us see the creation of a production version.

Transaction code: MM02

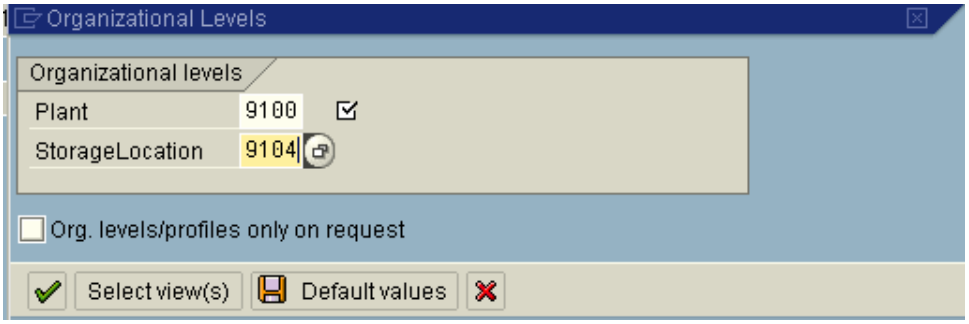


Click

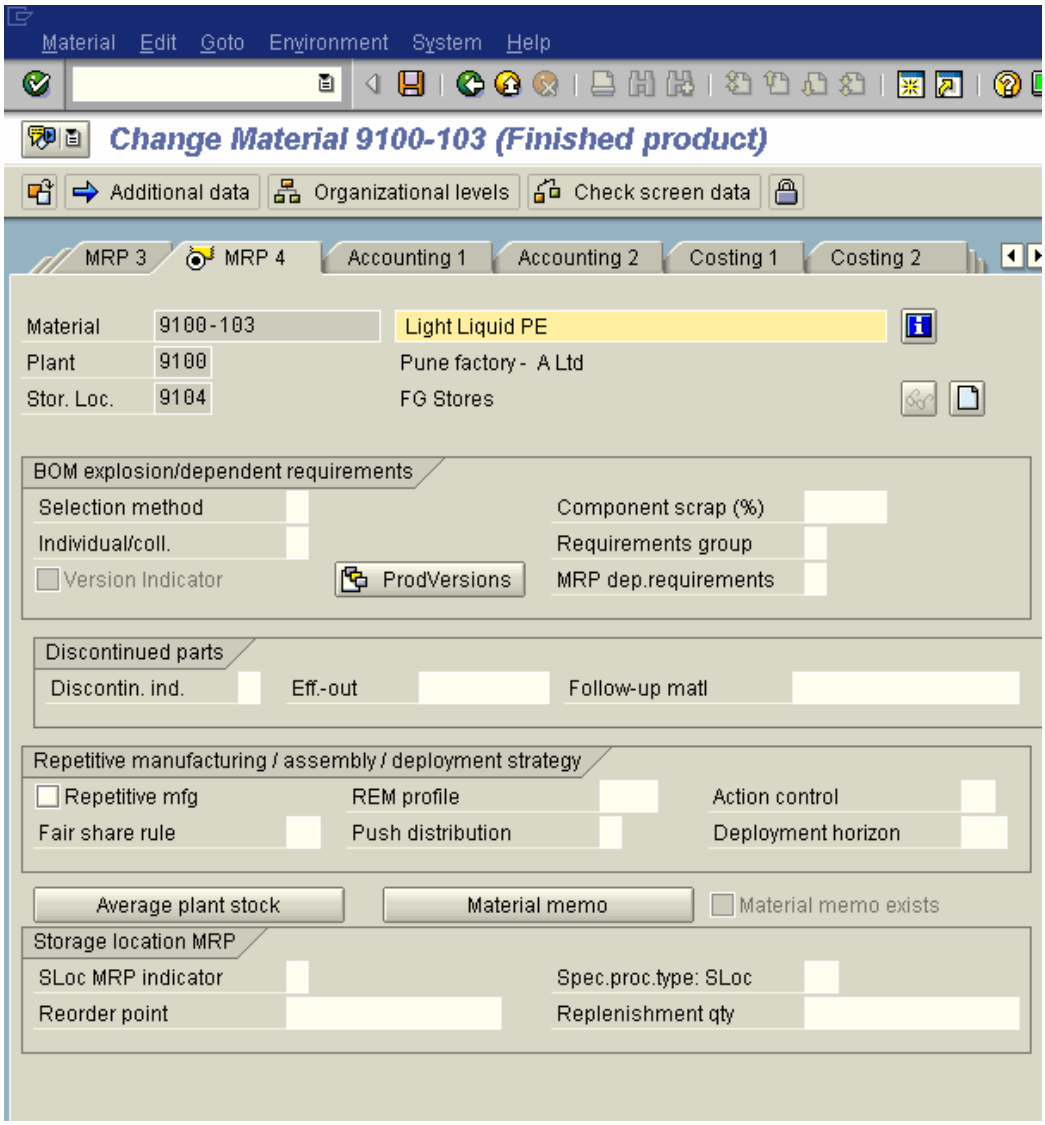


Click

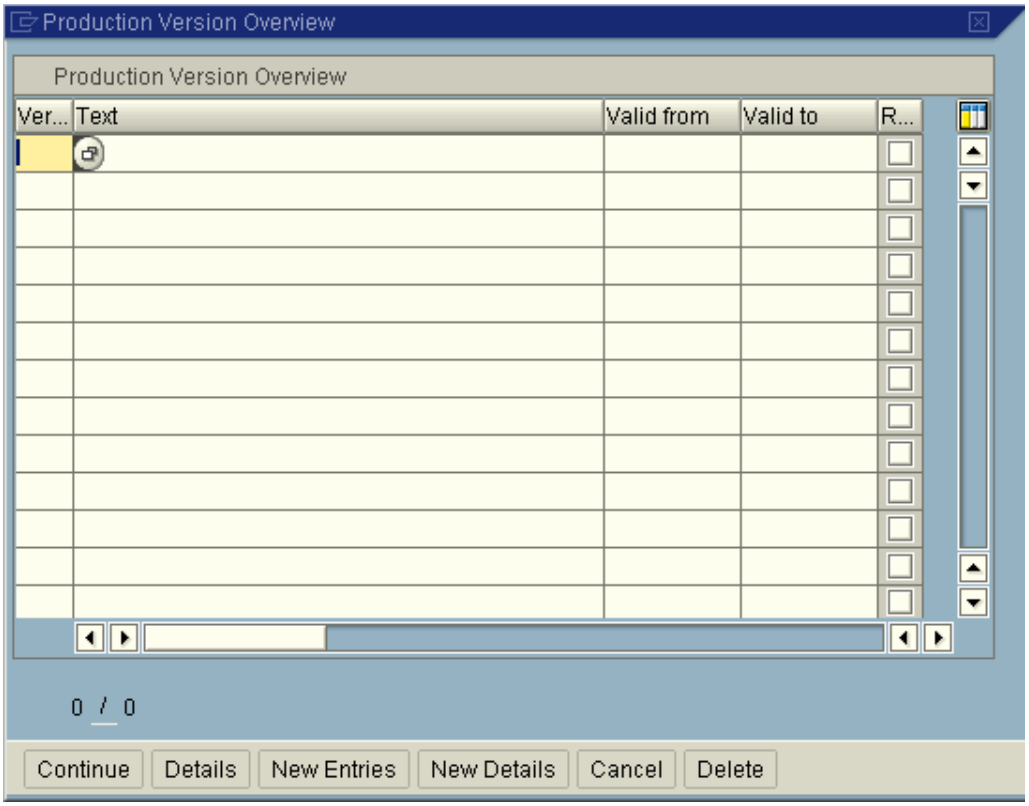
Update the following:-



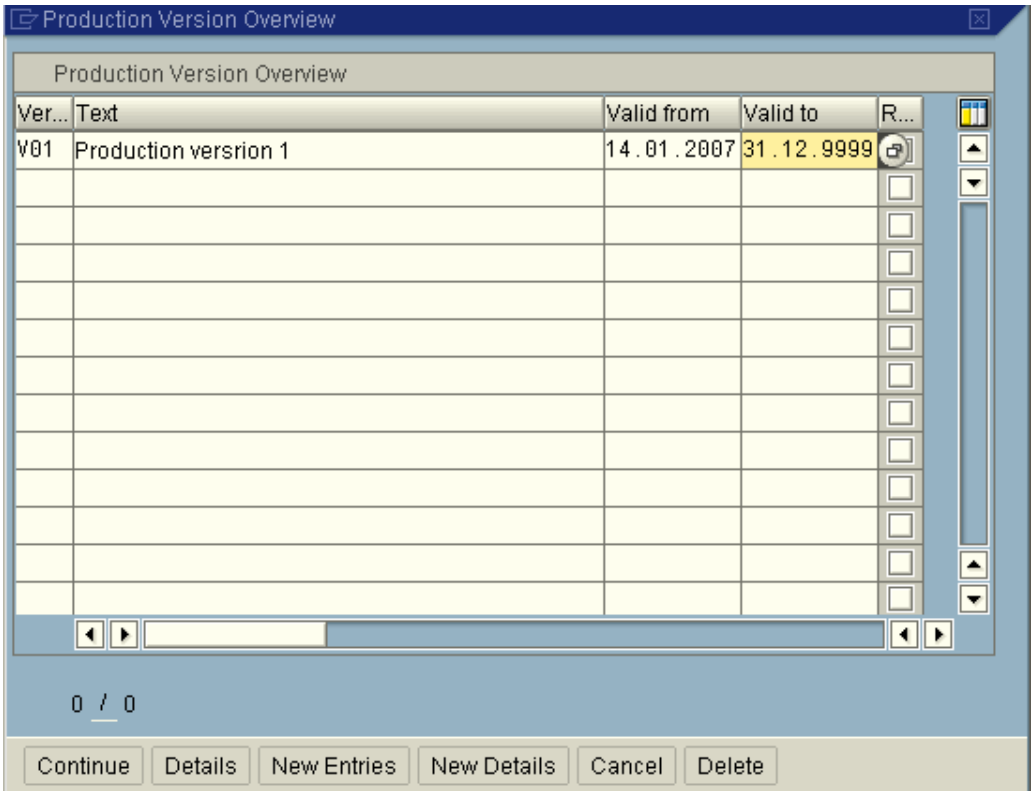
Click


Material Edit Goto Environment System Help
Change Material 9100-103 (Finished product)
Additional data
Organizational levels
Check screen data
MRP 3
MRP 4
Accounting 1
Accounting 2
Costing 1
Costing 2
Material 9100-103 Light Liquid PE
Plant 9100 Pune factory - A Ltd
Stor. Loc. 9104 FG Stores
BOM explosion/dependent requirements
Selection method
Individual/coll.
Version Indicator
ProdVersions
Component scrap (%)
Requirements group
MRP dep.requirements
Discontinued parts
Discontin. ind.
Eff.-out
Follow-up matl
Repetitive manufacturing / assembly / deployment strategy
Repetitive mfg
REM profile
Action control
Fair share rule
Push distribution
Deployment horizon
Average plant stock
Material memo
Material memo exists
Storage location MRP
SLoc MRP indicator
Reorder point
Spec.proc.type: SLoc
Replenishment qty

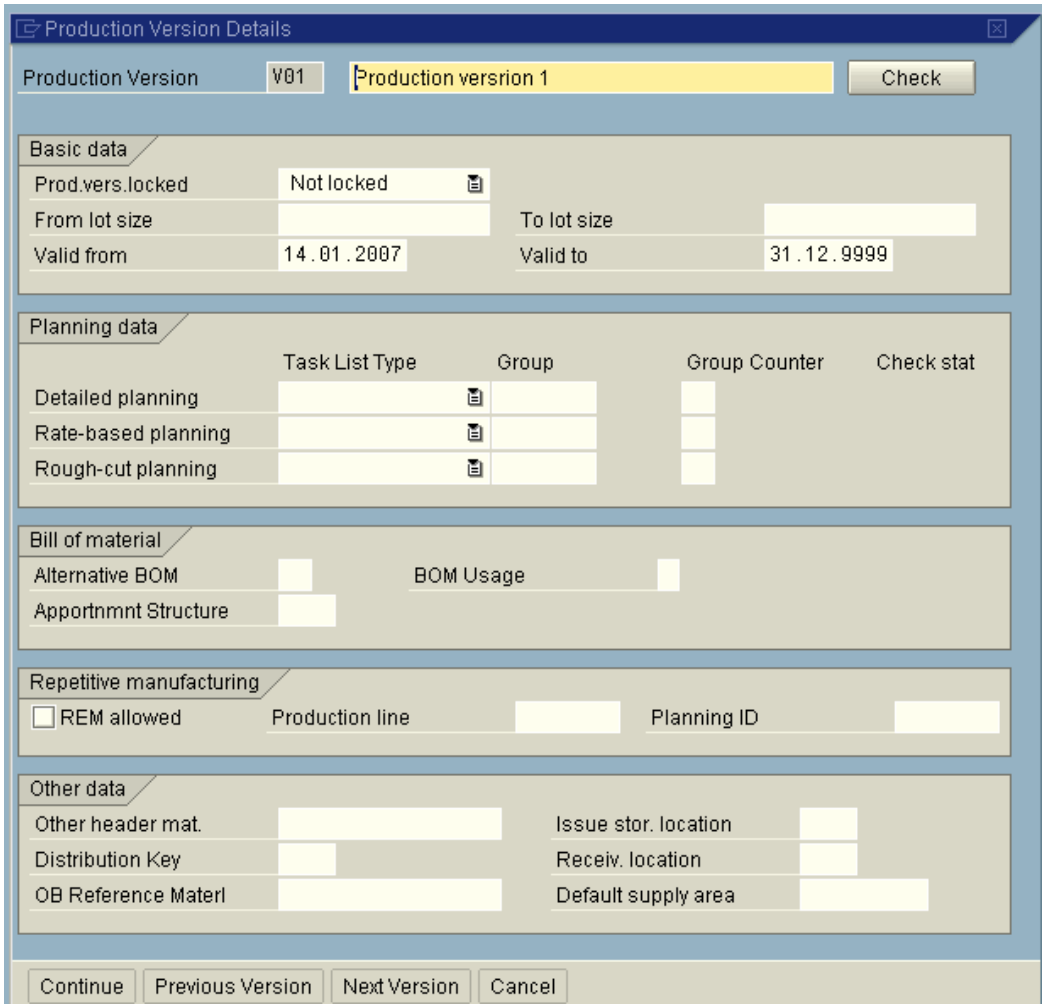
Click
ProdVersions



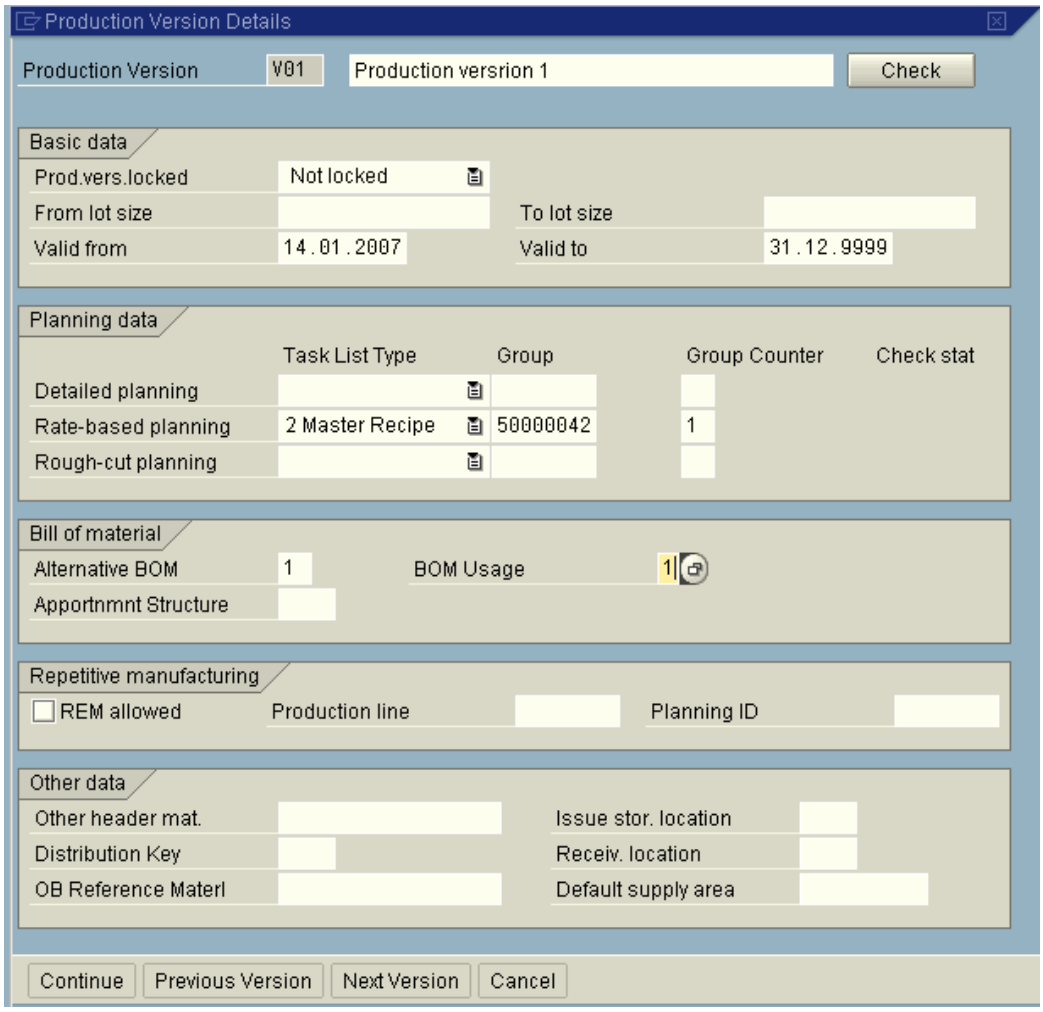
Update the following:-

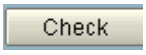


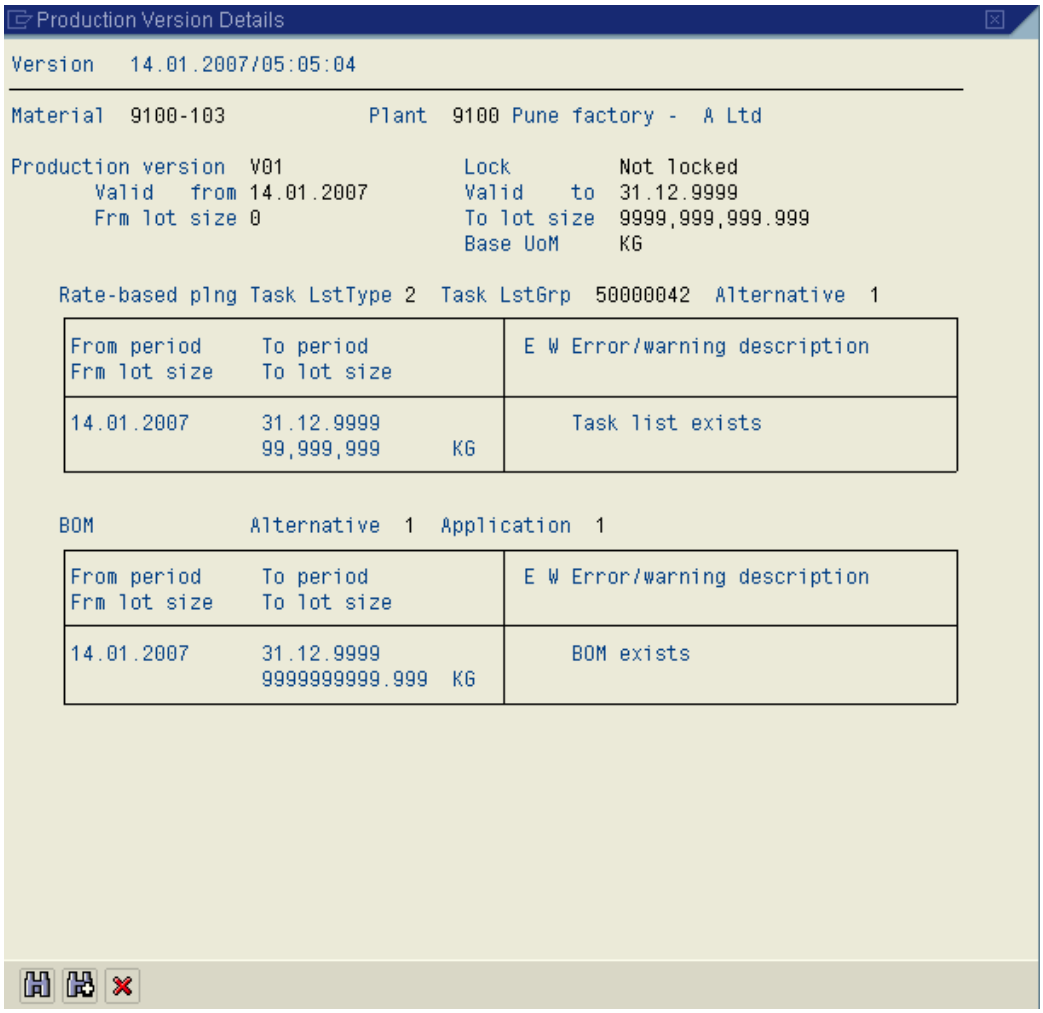
Click Details



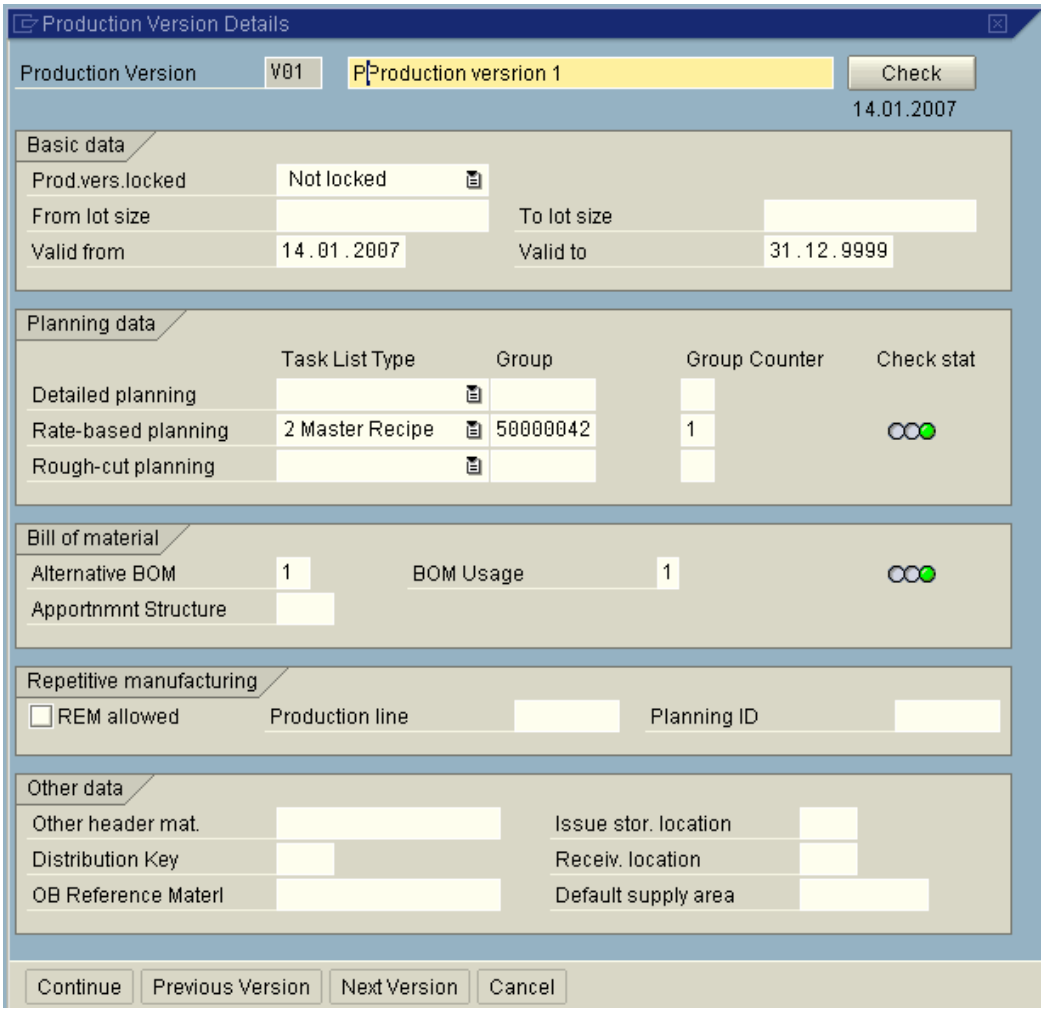
Update the following:-



Click 


Production Version Details
Version 14.01.2007/05:05:04
Material 9100-103 Plant 9100 Pune factory - A Ltd
Production version V01 Lock Not locked
Valid from 14.01.2007 Valid to 31.12.9999
Frm lot size 0 To lot size 9999,999,999.999
Base UoM KG
Rate-based plng Task LstType 2 Task LstGrp 50000042 Alternative 1
From period To period E W Error/warning description
Frm lot size To lot size
14.01.2007 31.12.9999
99,999,999 KG
Task list exists
BOM Alternative 1 Application 1
From period To period E W Error/warning description
Frm lot size To lot size
14.01.2007 31.12.9999
9999999999.999 KG
BOM exists

Click



Click

Click

Click on

The first production version 1 is by default picked up while executing standard cost estimate.

In case you want to have a Standard cost estimate taking the average of both the production version you need to configure mixed costing.

Mixed Cost estimate configuration and master data maintenance is covered in our SAP FICO configuration CD set.

7. Maintain Overhead rates

In case overheads have been configured then you need to maintain the overhead rates as a part of master data.

Overheads can be calculated as a % of Material costs or as a % of wages.
It can also be calculated based on quantity of raw material.

The overheads configured in our scenario are production overhead which is 4% of wages.

This is maintained by the costing department every year.

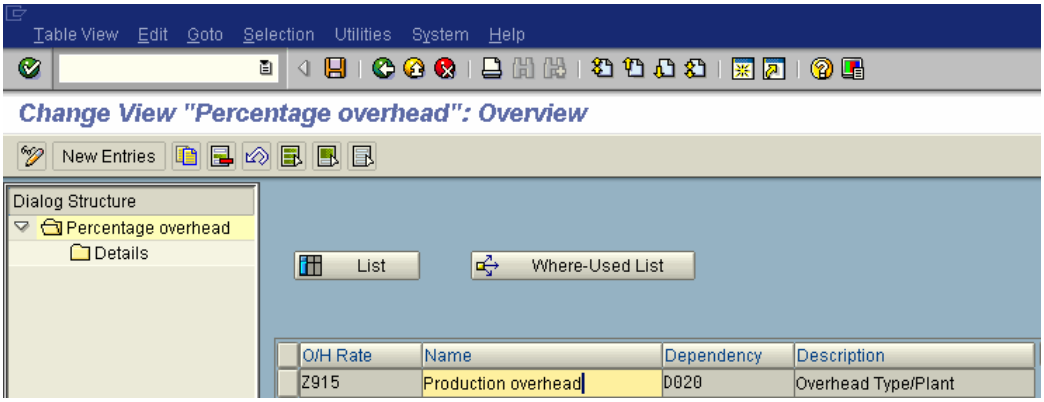
A costing sheet must have been configured for this to work. **The configuration of the costing sheet has been covered in detailed in the Product costing CD of the SAP FICO configuration CD set.**

Transaction code: S_ALR_87008275

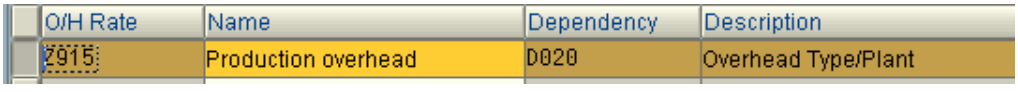
Or

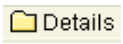
Path:

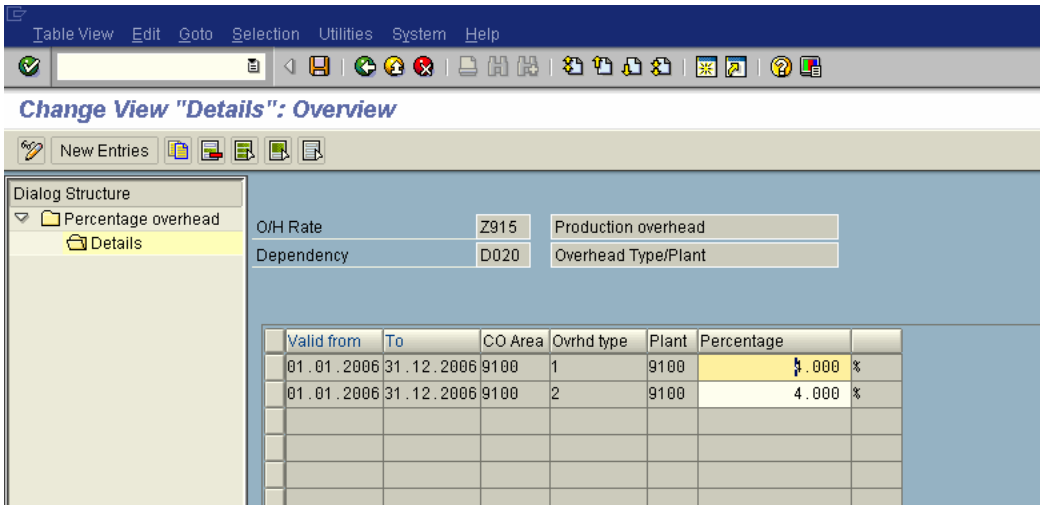
SAP menu → Accounting → Controlling → Product Cost Controlling → Cost Object Controlling → Product Cost by Order → Period-End Closing → Current Settings → S_ALR_87008275 - Define Percentage Overhead Rate



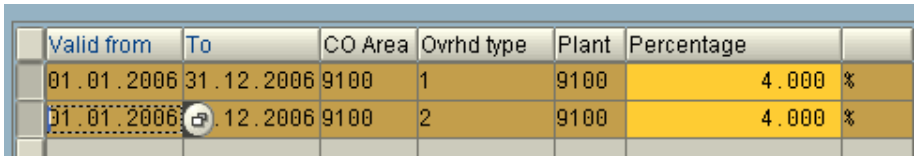
Select



Click 

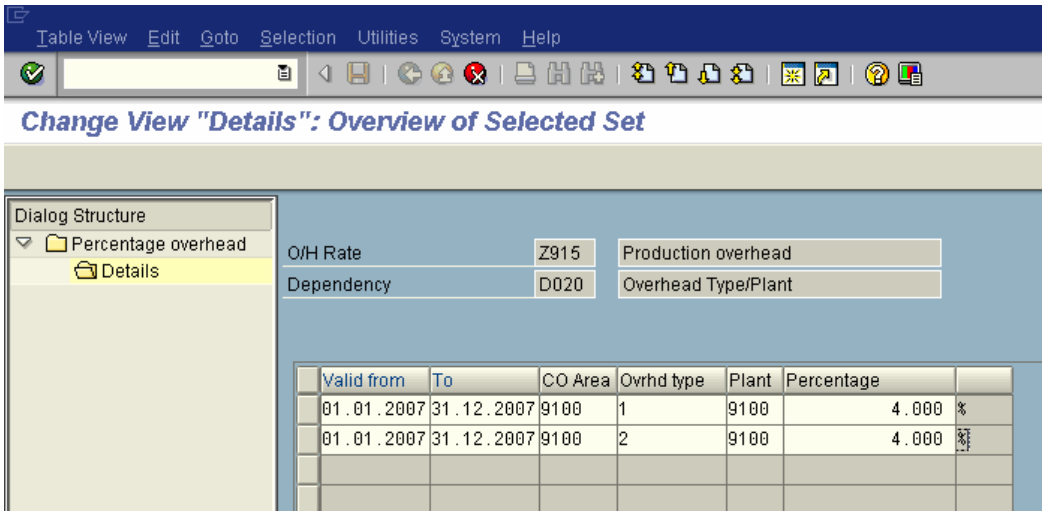


Select



Click

Update for the year 2007



Click

Click on

You are now ready to run the standard cost estimate, provided all the product costing configuration is in place.