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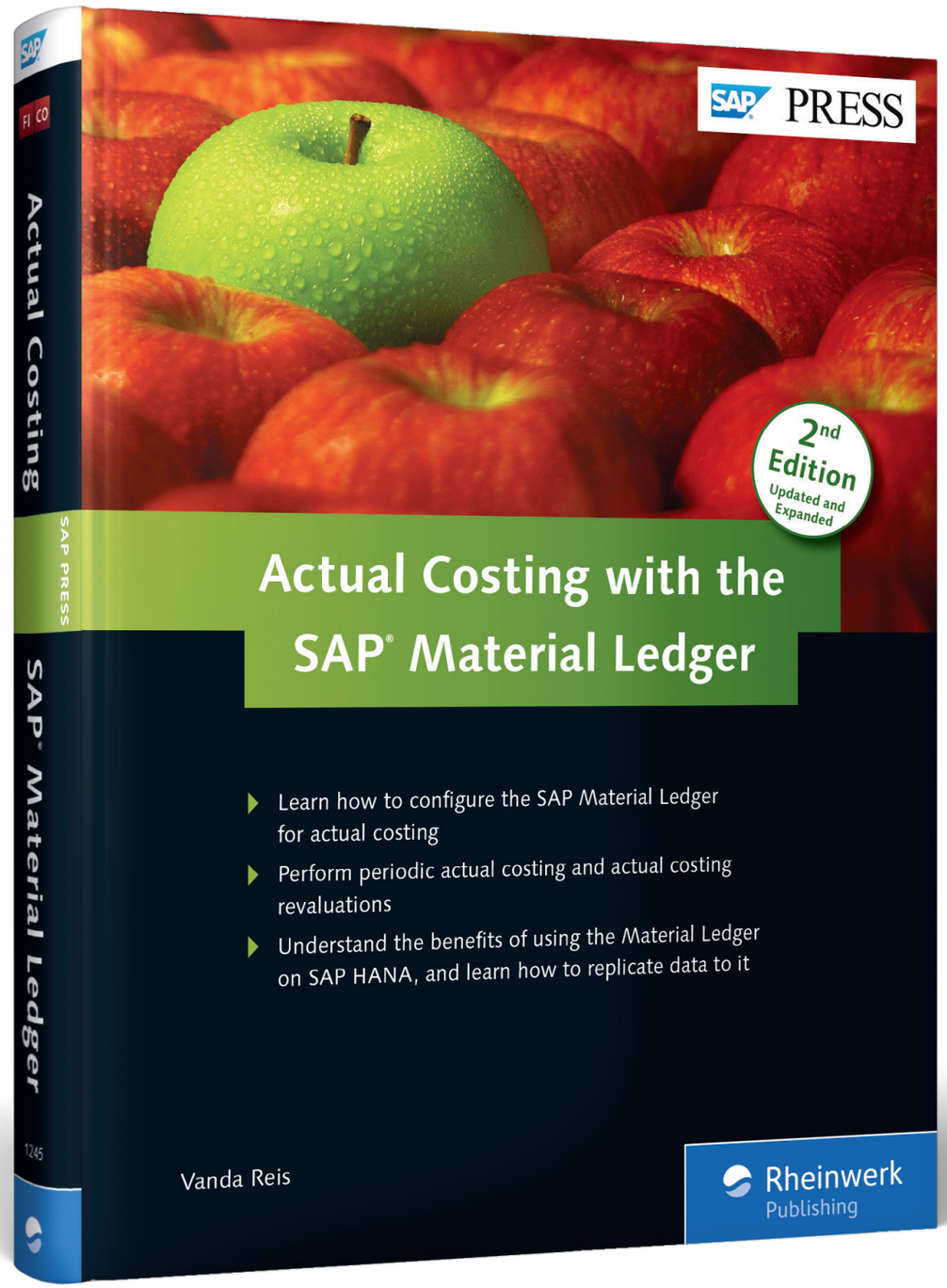

Reading Sample

This sample chapter reviews the standard product cost configuration that is used for product costing calculation and also shared with the actual cost. Take a look at the master data (cost centers, activity types, work centers, etc.) and the basic data (planning rates, materials standard prices, cost component split, and costing run results) that are used throughout this book.

"Introduction"
"Product Cost Planning"
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The Author

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"A journey of a thousand miles begins with a single step."
— Lao-Tzu (604 BC–531 BC), The Way of Lao-Tzu

1 Introduction

The Material Ledger may be one of the most ingenious tools that exists in SAP ERP software. Since its conception, the Material Ledger has had continuous improvements in each release, always creating something new to learn and raising questions never considered before that must be answered.

The Material Ledger is classified as a subledger of the General Ledger (GL) for materials, but it can also be a powerful cost-management tool. This book is intended to guide you from the basic idea of the Material Ledger in releases such as R/3 4.6C, through complex scenarios available in the most recent release in SAP ERP 6.0 enhancement package 7 (which we will refer to as EHP 7 in this book), and everything in between.

In this resource, you will learn the concepts of the Material Ledger, relate these concepts to the accounting documents (Financials, Controlling, and Profitability Analysis), and understand how processes flow within the system. To help illustrate these processes, we will use the example of a chocolate factory to show how the different business processes can create variances that affect the Material Ledger and the actual costing calculation.

This book shows not only the technical and mathematical explanation of how the Material Ledger calculates actual costs, but also the Material Ledger integration with Financial Accounting (FI). By the end of this book, you will have a complete understanding of the Material Ledger, from the original concept to the most complex functions available in the latest releases.

This book should serve as a guide for costing accountants, project leaders, and product cost consultants who are part of a SAP ERP implementation that includes product cost and inventory valuation processes.

Because the Material Ledger subject is integrated with most of the SAP ERP areas, we assume you are familiar with or have other sources of information in subjects such as product cost planning (CO-PC-PCP), cost object controlling (CO-PC-OBJ), Profitability Analysis (CO-PA), and SAP General Ledger.

1.1 Structure of This Book

The book is structured in three main parts. Each part and chapter is described in the following sections.

1.1.1 Part I: Introduction to the Material Ledger

In Part I, we discuss the basic product cost and Material Ledger processes and configuration. We present only the basic product cost information that is relevant for the Material Ledger without going into detail about how product costs are configured and used in the SAP ERP system. By the end of Chapter 5, you will have all the configuration and master data necessary to start running the Material Ledger scenario examples.

- **Chapter 2: Material Ledger Basics**
  In this chapter, we discuss the basic concepts of the Material Ledger and its use. We show you concepts such as price control, procurement alternatives, inventory valuation methods, price determination, categories, process categories, procurement and consumption alternatives, and controlling levels.
- **Chapter 3: Product Cost Planning**
  Here we review the standard product cost configuration that is used for product costing calculation and also shared with the actual cost. Here you see the master data (cost centers, activity types, work centers, bill of materials, routings, and activity types) as well as the basic data (planning rates, materials standard prices, cost component split, and costing run results) that are used in the examples in this book.
- **Chapter 4: Material Ledger Basic Configuration and Startup**
  We go through the basic Material Ledger, actual costing, and actual cost component structure configurations. Then we initiate the Material Ledger startup and reconciliation programs.

- **Chapter 5: Account Determination Configuration for the Material Ledger**
  We examine all the Materials Management (MM) account determination that is necessary to run the Material Ledger. We also configure how to treat the exchange rate differences in our chocolate factory example.

1.1.2 Part II: Basic Functions of the Material Ledger

In Part II, we show how the Material Ledger transaction data is created when a material-related transaction is performed in the system. We also cover the period-end closing activities for actual costing/Material Ledger and the main Material Ledger reports and display transactions.

- **Chapter 6: Purchasing Processes and Variances**
  We show you examples of how the external procurement processes (from purchase to payment) can influence the Material Ledger and actual costing through the price and exchange rate differences.
- **Chapter 7: Manufacturing and Overhead Variances**
  In this chapter, we discuss how the manufacturing process can influence the Material Ledger and actual costing. We see examples of production order variances and settlement to the Material Ledger during period-end closing activities.
- **Chapter 8: Periodic Actual Costing**
  We execute the Material Ledger actual costing run to calculate the periodic actual cost. For each step, we discuss the execution parameters, expected results, and the Material Ledger values.
- **Chapter 9: Actual Costing Revaluations**
  We discuss two other functions in the Material Ledger to revaluate at actual cost: the cost of goods sold (and other single-level consumptions) and the work in process (WIP) materials.
- **Chapter 10: Actual Costs and Value Flow Reports**
  We see the actual cost reports and display transactions in the Material Ledger (actual cost component split, valuated quantity structure, actual bill of material, and value flow monitor).
- **Chapter 11: Material Ledger: More Functionalities**
  We see more Material Ledger functionalities such as transferring actual cost to CO-PA, debiting or crediting directly to materials, changing actual cost component split values, distributing usage differences, and alternative valuation runs.

1.1.3 Part III: Advanced Topics in the Material Ledger

Part III presents advanced Material Ledger functions. We discuss the parallel valuation/transfer prices, multiple valuation of cost of goods manufactured using the Material Ledger solution, actual costing cross-company code, and how to use SAP HANA for actual costing processes.

- **Chapter 12: Transfer Prices and Multiple Valuation Approaches**
  The multiple valuation approaches or transfer prices refer to using the Material Ledger to carry the group and/or profit center valuations in inventory in addition to the legal valuation.
- **Chapter 13: IFRS and Multiple Valuation of Cost of Goods Manufactured**
  We analyze a business function in SAP ERP 6.0 EHP 5 called *parallel determination of costs of goods manufactured*, which is used when you have more than one accounting principal to valuate inventory.
- **Chapter 14: Actual Costing Cross-Company Code**
  We discuss a business function in SAP ERP 6.0 EHP 5 that allows you to valuate the in-transit stock at actual cost and to calculate cross-company code actual costs.
- **Chapter 15: Material Ledger on SAP HANA**
  In this chapter, we discuss the impact that SAP HANA can have on the actual costing processes. We see the Material Ledger accelerators, data replication to HANA, closing procedures, and reporting.

1.1.4 Appendices

Two appendices complement the Material Ledger overall functionality. **Appendix A** provides the accounting postings used in the examples through the T accounts. **Appendix B** provides a bibliography used in writing this book, which may also be useful for further reading.

1.2 Looking Ahead

After reading this book, you will have a total and deep understanding of the Material Ledger concepts, configuration, calculations, reports, and advanced functionalities. You will understand the different scenarios of material valuation and be able to choose the best option to fit to your company's requirements. You

will know in detail how actual costs are calculated by the Material Ledger and how you can use the Material Ledger to value the inventory or accrue the differences for different accounts.

Using the examples shown in this book, you will be able to extrapolate the Material Ledger concepts presented here to your individual business cases. The book gives you a unique perspective on the Material Ledger functionality and will prepare you to be part of an actual costing/Material Ledger implementation.

Product cost planning is an area within Product Cost Controlling, where you can plan future costs for materials and set their standard values. Product cost planning is the basis for Material Ledger day-to-day transactions.

3 Product Cost Planning

Before we begin our discussion of the Material Ledger and actual cost, we need to make clear some basic concepts for product cost planning. This chapter provides an overview of the master data that we use in this book's examples, as well as the basic configurations for product cost planning that are relevant for the Material Ledger. The information in this chapter is for your reference because we assume that you are already familiar with product cost planning concepts and configurations. Our intent is to discuss the Material Ledger in detail, assuming that you are already familiar with subjects such as quantity structure, bill of materials, routings, production/process orders, cost centers, activity types, cost allocation, standard costing, and manufacturing variances. If you need more information regarding product cost planning master data, configurations, and processes, *Product Cost Controlling with SAP* by John Jordan (2nd edition SAP PRESS, 2012) is a great source of information and references.

In this book, we will use an example of a chocolate factory to illustrate the concept of a multilevel production facility. To understand the full business scenarios contained in this example, we first need to describe the organizational structure, currencies, and master data related to the examples that you will see in the next chapters.

Later in this chapter, we will provide an overview of the cost center, activity type, bill of materials, routing and work center concepts, and examples of these elements as used in this book. You will learn about the two most relevant configuration steps in product cost planning when you are using the Material Ledger, and finally you will see the results of the standard costing calculations for the materials used in our examples.

3.1 Business Case

Our example chocolate factory, called Best Chocolate ML, is a holding company with two legal entities, or companies, represented in our system by company codes "Best Chocolate 10" (BC10) located in the United States and "Best Chocolate 20" (BC20) located in Belgium.

The entity BC10 uses US dollars (USD) as its currency, and BC20 uses Euros (EUR). Both company codes are assigned to the controlling area Best Chocolate ML (BCH0), which uses the currency EUR.

For profitability analysis, the controlling area is assigned to an operating concern called Best Chocolate OP (BC00), and, to make it easier to follow, its currency is also EUR. The chocolate company in the United States has two plants: BC11, called Best Chocolate Plant 11 and BC12, called Best Chocolate Plant 12. BC11 is the manufacturing plant and transfers the chocolate bars to the selling plant, BC12, where the chocolate bars are maintained in a refrigerated area and sold directly to the retail customers (usually supermarkets and grocery stores).

Figure 3.1 shows how the operating concern, controlling area, company codes, and plants are assigned.

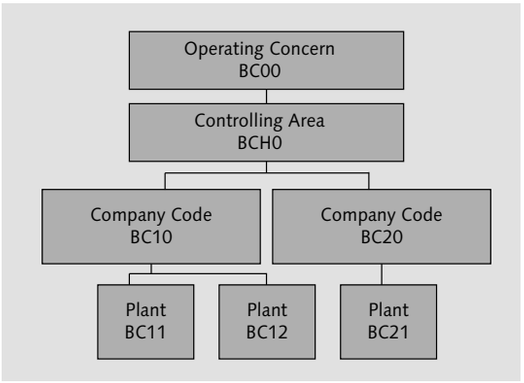

Figure 3.1 Best Chocolate Organizational Structure in SAP ERP

Eventually, BC10 in the United States also sells its chocolates bars to Company BC20, which we consider an inter-company operation.

Next, let's become familiar with the master data; you will see examples of this in the next chapters.

3.2 Master Data

Master data is the base of all transactions in SAP ERP. This key business information may include data about customers, products, employees, materials, and more. In the next few pages, we will discuss the definitions and setups for the master data elements that are relevant for our business scenarios and examples.

3.2.1 Cost Center

The cost center is an organizational unit within a controlling area that represents a defined location of cost incurrence. The two cost center examples we will see in this book represent the production departments where the chocolate mass and the chocolate bars are manufactured in plant BC11.

The following bullet points are the two cost center codes and descriptions that we will use in this book:

- **BC11001:** Best Chocolate plant 11 (production of semi-finished goods)
- **BC11002:** Best Chocolate plant 11 (production of finished goods)

In cost center BC11001, we will process the raw materials (cocoa, milk, and sugar) to produce a semi-finished material called Best Chocolate Mass. In a second process, cost center BC11002 will mold the Best Chocolate Mass and pack it using wrapping materials to create the Best Chocolate Bar.

In our examples, we will manually enter the plan and actual activity type rates into the system. The plan rates are in turn used to calculate the material standard prices and used in the cost allocation from the cost centers to the manufacturing order. The actual rates are used by the Material Ledger to calculate the variances between the plan and actual activity type rates and allocate these variances directly to the products that consumed the activity types, guaranteeing the total costs absorption.

Note

Because the main goal of this book is to show the total cost absorption by inventory, the examples we use will show and discuss only the cost absorption from production cost centers to materials. Allocations between cost centers are not shown.

Figure 3.2 shows the cost center master data for BC11001, which we will use in the cocoa mass production. You can view a cost center's master data using Transaction KS03 or by following the menu path Accounting • Controlling • Cost Center Accounting • Master Data • Cost Center • Individual Processing • Display.

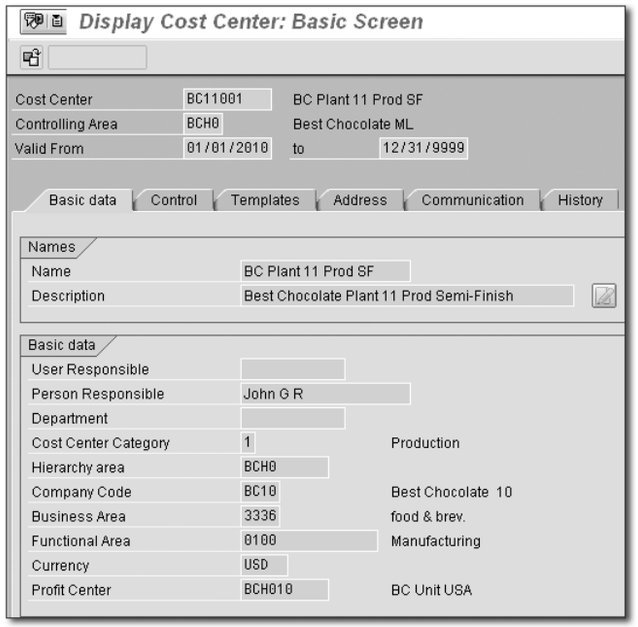

Figure 3.2 Display Cost Center

In this figure, the following master data fields are the most relevant for our examples:

- Name/Description
  These fields show the names that define the cost center, and they can be changed at any time. These fields are mainly used in reports.
- Cost Center Category
  Defines cost center activities such as production, sales, and administration. This field is also used to define the cost centers that are allowed to be used in activity types (see Section 3.2.2 for more information on how the cost center category is related to the activity type's master data).

3.2.2 Activity Types

Continuing our discussion about master data, let's discuss *activity types* and how we use them. The activity type is a unit in a controlling area that classifies the activities performed in a cost center. In our examples in this book, we only use two activity types:

- **BC0010:** Labor
- **BC0020:** Machine

Both activities are based on hours and are associated with the two production cost centers (BC11001 and BC11002). You will see how we assign the activity types to the production cost center in Section 3.4 when we discuss the plan rates for the activity types.

Figure 3.3 shows the master data for activity type BC0010 (labor). You can see the activity type master data by accessing Transaction KL03 or by following the menu path Accounting • Controlling • Cost Center Accounting • Master Data • Activity Type • Individual Processing • Display.

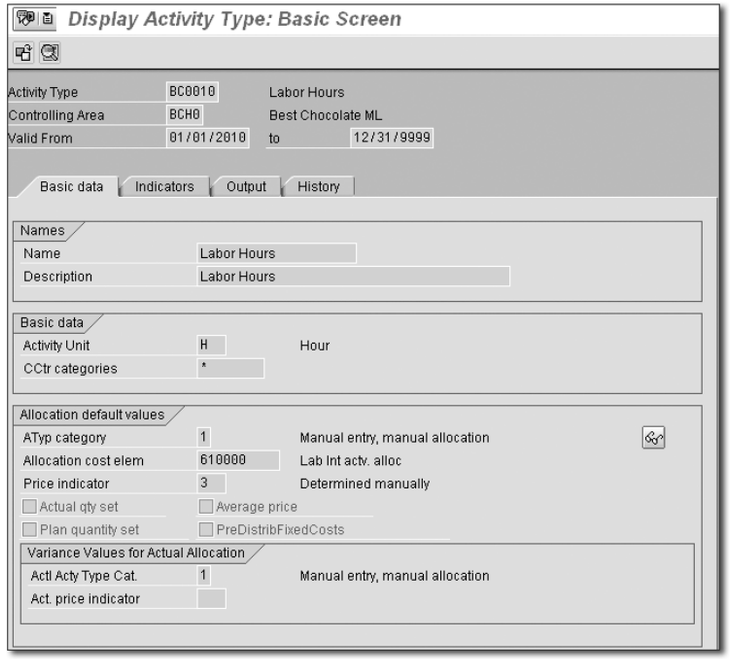

Figure 3.3 Display Activity Type: Labor

The following subsections describe the most important fields shown in Figure 3.3, which we use for the examples in this book.

Name and Description

These fields describe the activity type, are mainly used in reports, and can be changed at any time.

Activity Unit

This field is either the time or quantity unit used to post the consumed activity quantities. For the example we use in this book, we have set labor and machine activity types to use the unit "H" for HOUR.

Cost Center Categories

In the CCTR CATEGORIES field, we can restrict the cost center's category that can perform the activity type. For example, in Figure 3.3, we have set the activity type LABOR to be used for all cost center categories (*), but we could have restricted this activity type to be executed only by cost center category production by choosing "Production" in the CCTR CATEGORIES field.

Tip

If the activity type is to be valid for all cost center types, use the asterisk symbol (*) in the CCTR CATEGORIES field.

Activity Type Category

The ATYP CATEGORY field is set as category 1 (manual entry, manual allocation), which means the activity type uses direct activity allocation in the following instances:

- During the planning process, plan activity quantities can be manually input or transferred from the Logistic Information System (LIS). (We will go into more detail about activity input planning in Section 3.4.)
- Actual activity quantities are entered for each business transaction that uses internal activity allocation, such as activity confirmation.

Allocation Cost Element

The allocation cost element is a secondary cost element under which the activity type allocates cost from the production cost center to other cost objects such as other cost centers, internal orders, and manufacturing orders.

Note

The cost element is a classification of the organization's valuated consumption of production factors within a controlling area. There are two types of cost elements:

- A primary cost element is a cost item in the chart of accounts for which a corresponding General Ledger (GL) account exists in Financial Accounting (FI).
- Secondary cost elements are created and administrated in Controlling (CO). They represent the costing flows, such as internal activity allocation, overhead calculations, and settlement transactions.

You can see back in Figure 3.3 that the allocation cost element that we will use to allocate the activity type labor is "610000". That means that every time we have a confirmation in the manufacturing order, the SAP ERP system will transfer the cost of labor from the cost center to the manufacturing orders by using the cost element 610000.

Price Indicator

To make our example the simplest one possible in the allocation point of view, we will set the PRICE INDICATOR field as 3. This means that the price, or rate for the labor activity type, is set manually in the SAP ERP system. We will go into more detail on how you can manually assign the activity type prices for each production cost center in Section 3.4. Figure 3.4 shows the machine activity type master data. The machine master data is similar to labor activity type master data, with the difference being that the secondary cost element is used for the activity type allocation. For activity type machines, the system will automatically use the cost element 620000 to allocate the cost of machine from the cost center to the manufacturing orders.

So far, we have gone over the master data elements in CO that are relevant to our examples. Now let's examine some of the logistics master data elements, starting with materials and bill of materials.

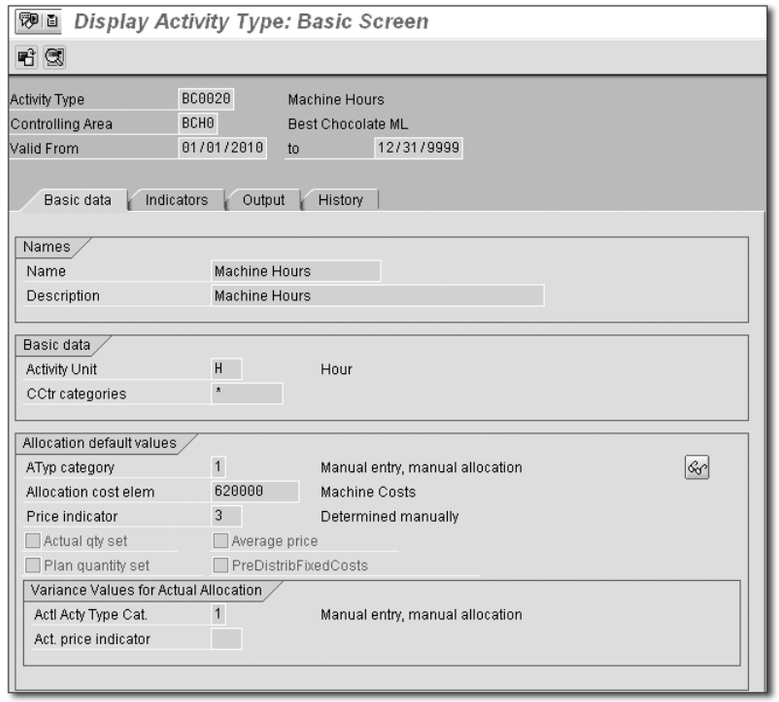

Figure 3.4 Display Activity Type: Machine

3.2.3 Materials and Bill of Materials

In SAP ERP, *materials* are the goods that are the subject of a business activity. Materials can be traded, used in procedures, consumed, or produced.

A bill of materials (BOM) is a complete, structured list of the components that make up a product. Now let's take a look and understand the materials and bill of materials used for the Best Chocolate examples.

Figure 3.5 shows a graphic representation of the Chocolate Bars BOM. The full process begins with the procurement of the raw materials (cocoa, milk, and sugar). In the first manufacturing process, cocoa, milk, and sugar are mixed to produce a semi-finished product called Chocolate Mass. In a second process, the Chocolate Mass is molded and packaged, which creates the finished product: Best Chocolate Bars.

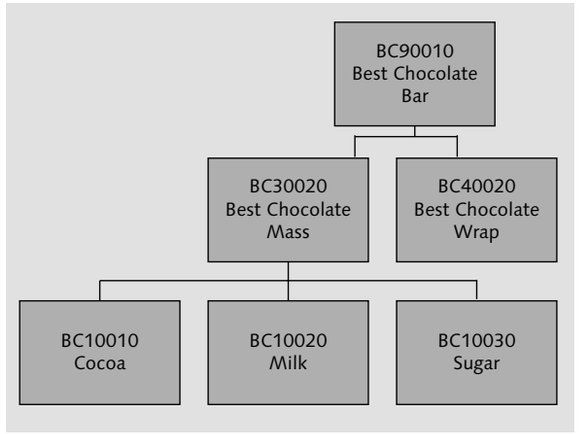

Figure 3.5 Best Chocolate Material Structure

In Figure 3.5, you can also see the material structure to produce the Best Chocolate Bars and the material numbers. For instance, BC10010 represents the raw material, cocoa, which will be procured and mixed with BC10020 (milk) and BC10030 (sugar).

You can see or update a BOM in SAP ERP using Transaction CS02 or by following the menu path Logistics • Production • Master Data • Bills of Material • Bill of Material • Material BOM • Change. Figure 3.6 shows the Chocolate Mass BOM in the SAP ERP system. In the top of the screen you see the material BC30020, plant BC11, and alternative BOM 1.

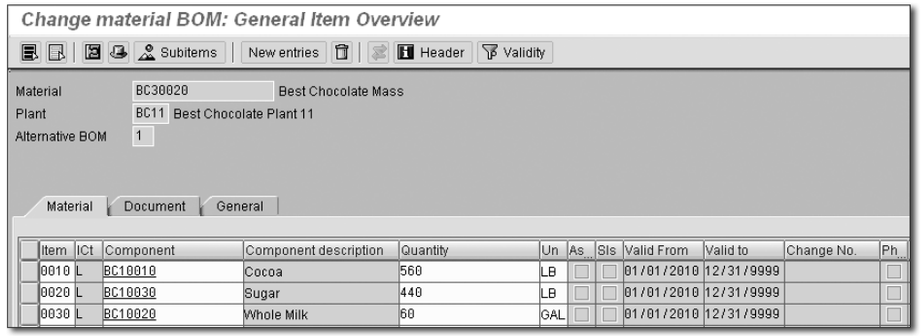

Figure 3.6 Change Material BOM

The ALTERNATIVE BOM field identifies one BOM in a BOM group. This field is used, for example, when a product has different manufacturing processes for different lot sizes. In this case, each manufacturing process could have a different BOM, where each one is represented by an alternative BOM number. In our example, we have only one BOM, which is represented by alternative BOM 1. Figure 3.6 also shows all materials (here called components) that are used to produce BC30020. For each material, you can see the planned quantity to use and the unit of measure. In the same way, the chocolate bars (material BC90010) also have a BOM in which the components are the chocolate mass (BC30020) and wrap (BC40020).

3.2.4 Routings

A *routing* is a description of the production process used to manufacture products or provide services in the manufacturing industry. It specifies the following elements for each operation:

- The work center at which the operation is carried out
- The default values that are to be used to calculate the dates, capacities, and production costs
- Whether or not the costs of an operation are taken into consideration for costing

You can see or update a standard routing using Transaction CA02 or by following the menu path LOGISTICS • PRODUCTION • MASTER DATA • ROUTINGS • ROUTINGS • STANDARD ROUTINGS • CHANGE. Figure 3.7 shows the routing that was created for the semi-finished product Best Chocolate Mass. The routing used to produce the Best Chocolate Mass has only one operation, and it is assigned to work center 1000 in plant BC11.

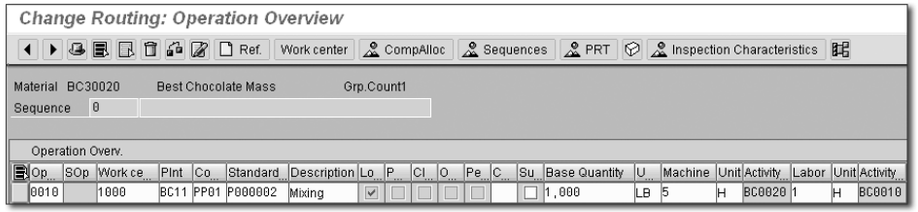

Figure 3.7 Routing to Produce Best Chocolate Mass

You also see in Figure 3.7 that operation 0010 is assigned to the BC0010 (Labor) and BC0020 (Machine) activity types. The time necessary for each of these activity types is also assigned to the operation. You can see from Figure 3.7 that to produce a batch of Best Chocolate Mass, we are planning to use five hours of machine time and one hour of labor.

Now let's examine the setup for work center 1000, where the operation 0010 is performed.

3.2.5 Work Center

A work center is an organizational unit that defines where an operation can be performed. The activities performed by a work center are valued by rates, which are determined by cost centers and activity types. You can display the work center master data (see Figure 3.8) using Transaction CR03 or by following the menu path LOGISTICS • PRODUCTION • MASTER DATA • WORK CENTERS • WORK CENTER • DISPLAY. You can see in Figure 3.8 that work center 1000 is assigned to cost center BC11001, as well as to activity types BC0020 and BC0010.

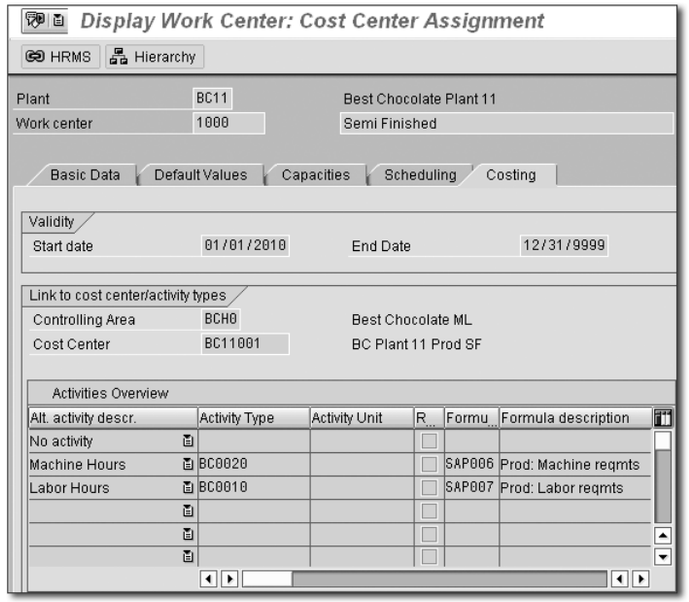

Figure 3.8 Display Work Center: Cost Center Assignment

We assigned the activity types to the standard SAP ERP formulas SAP006 and SAP007, which are used to calculate the costs of a work center's activity type. We also have a routing for BC90010, and this routing is indirectly assigned to the cost center BC11002 and labor and machine activity types through the work center 2000.

So far, we have reviewed the concepts and setups for cost centers, activity types, BOMs, routings, and work centers used in our examples. Now let's look into some planning transactions that we need to complete to produce a product cost calculation.

3.3 Activity Types and Planning Prices

Section 3.2.2 described the activity type master data, and Section 3.2.5 showed how the activity type and the work center are assigned. You also saw in Section 3.2.4 how a material routing and the work center are assigned. Now we will review how to determine a plan rate for activity types.

The plan activity type prices are used in two different processes within the product costing area:

- Part of the standard costing calculation, which is based on the plan activity quantity used in the operation within a routing.
- In the actual allocation, which is based on the actual activity quantity that is confirmed during the production execution. Because the final actual activity type prices become known only during the monthly closing process, your SAP ERP system uses the plan activity type prices to post the manufacturing orders' confirmations during the month.

Note

A *manufacturing order* is a generic name for the request to manufacture a specific quantity of a material by a specific date. It can be a production order or a process order.

Activity Rates

For the purpose of this book, we will manually enter the plan and actual activity rates. In a more complex scenario, several allocation steps may be necessary

before the rate calculations (plan and actual) of the automatic activities. To enter the plan activity rates, use Transaction KP26 or follow the menu path Accounting • Controlling • Cost Center Accounting • Planning • Activity Output/Prices • Change. Figure 3.9 shows the selection screen that allows you to specify the planning version, time period, cost centers, and activity types to be planned.

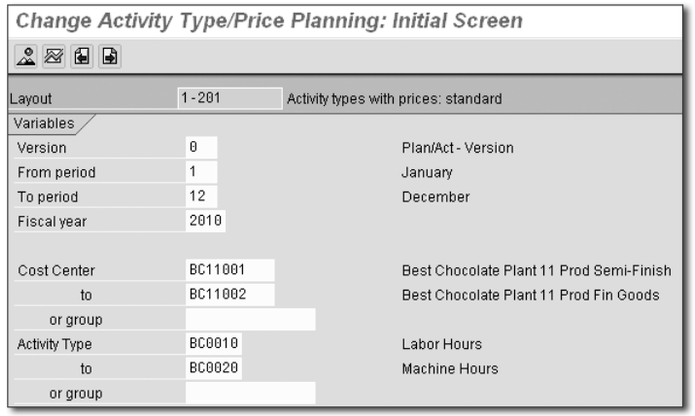

Figure 3.9 Activity Output/Prices Selection Screen

In this screen, you enter the cost centers and activity types that we have already established in this chapter into the appropriate fields. Next, click the Overview icon or press F5. This will take you to the screen to change or display the activity type plan rates as shown in Figure 3.10. This screen shows the fixed and variable plan prices for activity types Labor and Machine in cost BC11001 (semi-finished cost center).

Figure 3.10 Change Activity Type Price: Cost Center BC11001

Note

As we discussed in Section 3.2.2, in order not to deviate from the main subject of the Material Ledger, we will manually enter the plan rates (fixed and variable prices) instead of having a complete planning process and letting the SAP ERP system calculate the rates. The important point here is that you see which rates we are using for the standard costing and for the manufacturing orders confirmation. In Chapter 8, we will compare these plan rates with actual rates and see how material absorbs the variance between them.

With the activity type rates, you can also see the price per unit. For example, activity BC0010 (labor) costs EUR3.00 per hour; EUR2.00 is the fixed cost, and EUR1.00 is the variable cost. In the ALLOC. COST ELEMENT column in Figure 3.10, the secondary cost element 610000 is used to allocate the activity type labor, and cost element 620000 is used to allocate the activity type machine. The system takes these cost elements from the activity type master data (refer to Figure 3.3).

To see the activity type rates for the next cost center, just click the NEXT COMBINATION icon ▼ or press Ctrl + F2. Figure 3.11 shows the plan price for labor and machine activity types in cost center BC11002 (finished goods cost center).

Change Activity Type/Price Planning: Overview Screen

Line items | Change Values

Version	0		Plan/Act - Version		
Period	1	To	12		
Fiscal Year	2010				
Cost Center	BC11002		Best Chocolate Plant 11 Prod Fin Goods		

Activity	Unit	Fixed price	Variable price	Price unit	Pl...	P...	A...	Alloc. cost elem...	T	EquiNo
BC0010	H	25.00	15.00	00010	3	☐	☐	610000	1	1
BC0020	H	10.00	20.00	00010	3	☐	☐	620000	1	1
*Activ										2

Figure 3.11 Change Activity Type Price: Cost Center BC11002

For the examples we cover throughout this book, this is the only planning transaction necessary.

Now let's examine some configuration transactions in product cost planning that you must execute to use the Material Ledger.

3.4 Selected Configuration for Product Cost Planning

Now that we have overviewed the most relevant master data elements for the examples in this book, let's discuss a few configuration transactions in product cost planning that are used by the Material Ledger or are necessary only for the Material Ledger. Note that the configuration steps we discuss here are in the product cost planning domain only. We will discuss specific Material Ledger configuration in Chapter 4.

3.4.1 Cost Component Split

SAP defines the cost component split as:

> *A breakdown of costs into units called cost components, which provide detailed cost information for accounting purposes. Cost component splits can be used to break down the cost of a material, process, or activity type.*

The cost component split provides a method to see details of the cost estimate and standard cost. You can see an example of cost component split in Figure 3.12 later in this chapter.

An important link exists between the cost component structure in product costing planning configuration and the Material Ledger. Both SAP ERP functionalities share the same cost component structure definition (main and auxiliary cost component split). The same cost component split that is used to update standard cost is also used by the actual cost component split in the Material Ledger.

Note

The auxiliary cost component split is an alternative way of grouping the cost of goods manufactured that shows the breakdown of the primary costs for the activity types. The auxiliary cost component provides a detailed view of how the activity types are composed, similar to having a second level of breakdown in product costing.

Let's now walk through how to define the cost component split used for the product costing example. Access the configuration of the cost component structure (see Figure 3.12) using Transaction OKTZ or by following the IMG menu path CONTROLLING • PRODUCT COST CONTROLLING • PRODUCT COST PLANNING • BASIC SETTINGS FOR MATERIAL COSTING • DEFINE COST COMPONENT STRUCTURE.

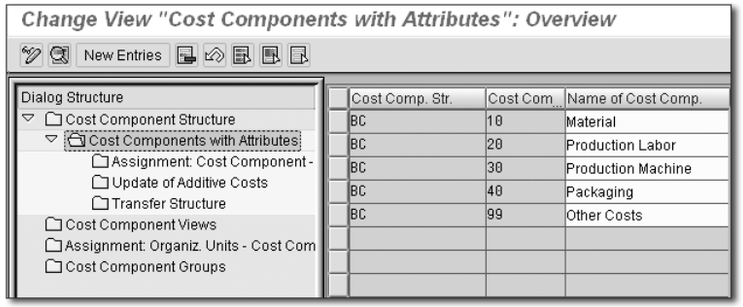

Figure 3.12 Define Cost Component Structure

Figure 3.12 shows how we have defined the cost components used for the examples in this book (MATERIAL, PRODUCTION LABOR, PRODUCTION MACHINE, PACKAGING, and OTHER COSTS). Each of these components is assigned to cost elements according to the following definitions:

- Cost component Material 10 is assigned to all cost elements associated with direct material consumption.
- Cost component Production Labor 20 is assigned to the cost element associated with activity type Labor (Cost Element 610000).
- Cost component Production Machine 30 is assigned to the cost element associated with activity type Machine (Cost Element 620000).
- Cost component Packaging 40 is assigned to the cost element associated with packaging materials (Cost Element 400020).
- Cost component Other Costs (99) is assigned by default to Cost Component 99.

Note

If you are using the Material Ledger with an actual cost component split, it can be difficult to change the cost component structure. SAP Note 434873 gives more information and details on how to change the cost component structure valid for Material Ledger/product costing.

Now that you have seen how the cost component structure is defined and which cost elements are assigned to each component, let's check the second configuration in the product costing area that you need to check if you want to use the Material Ledger: activate the cost component split in controlling area currency.

3.4.2 Activate Cost Component Split in Controlling Area Currency

If you want to use the Material Ledger with multiple currencies, you should activate the cost component split in controlling area currency. If you do not perform this action, the system will show only the cost component in the company code currency in the product cost estimate transaction and will therefore translate the estimate cost from company code currency to controlling area currency during the marking step. In this configuration, you must specify which company codes the cost component split has to update not only in the company code currency, but also in the controlling area currency.

Note

Remember that SAP ERP updates values in the transaction and object currencies in CO only if you have set the ALL CURRENCIES indicator in the controlling area settings. You can check this indicator using the configuration Transaction OKKP and selecting ACTIVATE COMPONENTS/CONTROL indicators.

You can activate the cost component split in the controlling area currency information using Transaction OKYW or by following the IMG menu path CONTROLLING • PRODUCT COST CONTROLLING • PRODUCT COST PLANNING • SELECTED FUNCTIONS IN MATERIAL COSTING • ACTIVATE COST COMPONENT SPLIT IN CONTROLLING AREA CURRENCY (see Figure 3.13). The screen that appears will enable you to configure the BC10 and BC20 company codes to update the cost component split in the controlling area currency.

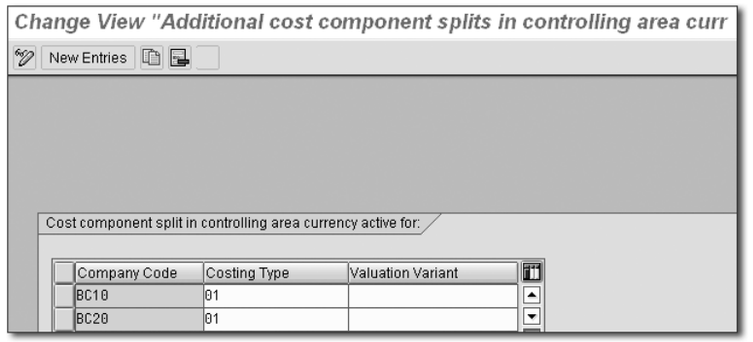

Figure 3.13 Activate Cost Component Split in Controlling Area Currency

To activate the cost component split in controlling area currency, click the New Entries icon and add the company codes for which you want the system to save the cost component split in controlling area currency, in addition to the company code currency. You can optionally specify for which costing type or costing variant you want the system to save the controlling area currency as well.

Note that if you enter a costing type but no valuation variant, as shown in Figure 3.13, the cost component split in the controlling area currency will be updated for all cost estimates with this costing type. The costing type 01 is an SAP ERP standard configuration that allows the updating of the standard price in the material master data. With this configuration, the system will save the cost component split in company code and controlling area currencies, but only for the costing estimate used for standard costing.

Note

The costing type is a key used for internal control of the costing application. It defines the purpose of a material cost estimate by specifying, for example, to which field in the material master record the costing results can be transferred. The costing type is a mandatory setting for the costing variant configuration in Transaction OKKN. You can check the costing type settings using Transaction OKKI.

After this overview of the most relevant master data, as well as configuration for product cost planning and the Material Ledger, we will now move on to the standard costing calculation for the Best Chocolate materials and its breakdown in the cost components.

3.5 Standard Costing

As we have mentioned, the main goal for this chapter is to review the product costing concepts so you can use them to calculate the standard cost estimate for the materials that are used in the examples. The standard cost estimate and its cost component split will be the base for the Material Ledger transactions and reports that we will discuss in the next chapters. You will see examples in the next chapters that reference the standard costing results discussed in this chapter.

To calculate the standard costs for all Best Chocolate materials, we use an SAP ERP tool called a *costing run*. The costing run is a tool that enables you to cost multiple

materials at the same time. In product cost planning, costing runs are used to cost materials based on planning data.

You can create a costing run using Transaction CK40N or by following the menu path Accounting • Controlling • Product Cost Controlling • Product Cost Planning • Material Costing • Costing Run • Edit Costing Run. To create a new costing run, call Transaction CK40N and click the Create icon. Enter the costing run name, description, and date. Enter the costing parameters for the costing variant, costing version, controlling area, and company code, and then save it.

After you click Save, you will see the screen shown in Figure 3.14, which shows the parameters used to create the costing run. You can see that we created the costing run BC101110 for the Controlling Area BCH0 and Company Code BC10, and we used the Costing Variant PPC1 (standard SAP ERP), as well as Costing Version 1.

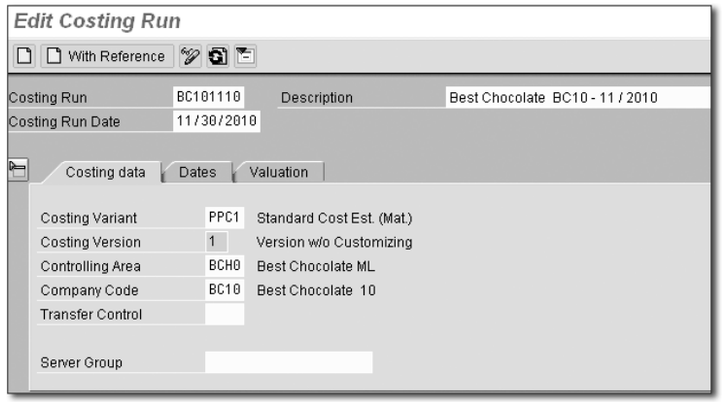

Figure 3.14 Create a Costing Run Costing Data

After entering the costing parameters, press Enter or click the Dates tab. Figure 3.15 shows the dates for which we created the costing run.

The Costing Date From field automatically determines the posting period for which the costing estimate is valid. In our example, the costing estimate is valid starting in 11/2010.

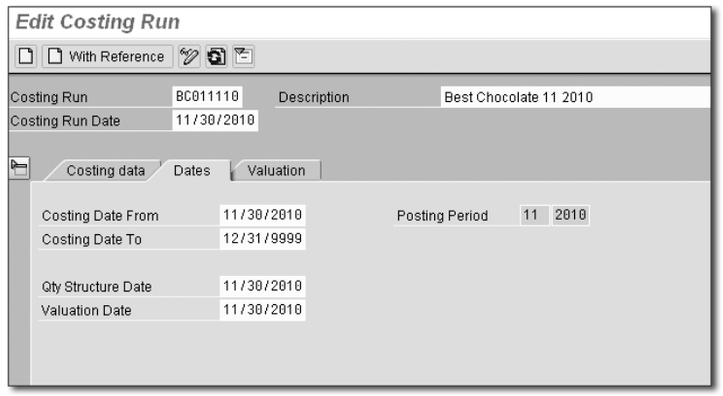

Figure 3.15 Create a Costing Run Dates

After entering the parameters shown in Figure 3.14 and Figure 3.15, save the costing run by clicking the SAVE icon. Then click the PROCESS icon to expand the screen and show the flow steps to create the costing estimate, as shown in Figure 3.16. Here you can see all the steps we have executed in our costing run to calculate and release the standard costing for all material in company BC10.

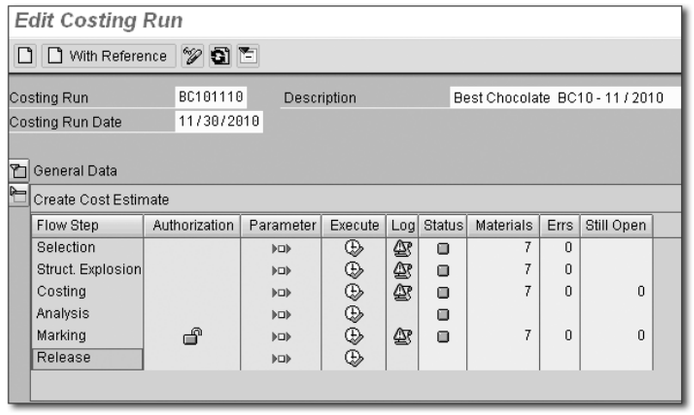

Figure 3.16 Edit Costing Run

For each row in the FLOW STEP column, you have a PARAMETER icon that opens a screen, where you have to specify the execution parameters. For each row, there is also an EXECUTION icon, which uses the parameters to execute the step.

Now let's discuss each step of the costing run presented in Figure 3.16 in detail.

Material Selection

Using the material selection step, you select the materials for which you want the system to calculate the standard costing. Figure 3.17 shows how we have selected all materials within the BC11 and BC12 plants. If you only enter plants, as we have done in Figure 3.17, the system automatically selects all materials created in those plants.

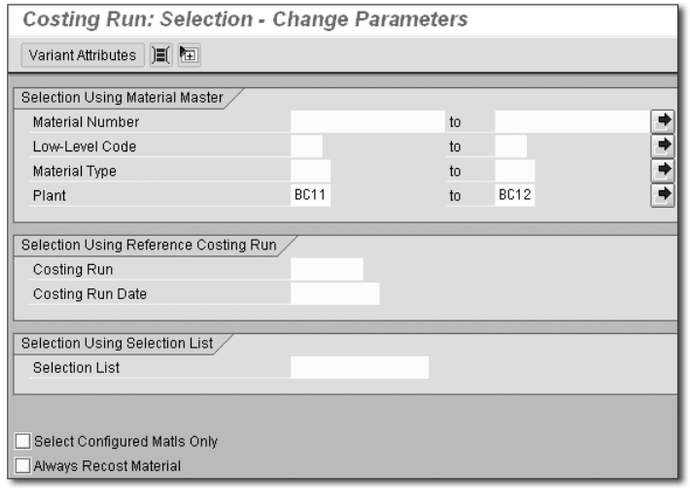

Figure 3.17 Costing Run: Cost Estimate: Change Selection Parameters

After entering your parameters, save the screen and go back to the previous screen using the green arrow icon. Click the EXECUTE icon in front of the SELECTION row to run your material selection.

Structure Explosion

After the selection is complete, the system selects all materials contained at lower levels in the BOMs for all materials from your previous material selection. After exploding the BOM and getting all materials in all levels of production, the system displays the status, number of materials exploded, number of materials processed with errors, and the number of materials that have yet to be processed.

Tip

A BOM explosion is only necessary if the materials selection in the previous step is incomplete. For example, you would use the BOM explosion if you selected only finished goods or certain material types in the first step. You can skip the BOM explosion if you selected all the materials in all the plants, as we have done in our example. Because our previous selection had all materials in plants BC11 and BC12, we did not need to execute this step.

Costing

In this step, the system calculates the cost estimates for all materials selected or exploded. Start by clicking the CHANGE PARAMETER icon in the PARAMETER column of the COSTING row. Figure 3.18 shows the parameters used in our costing run.

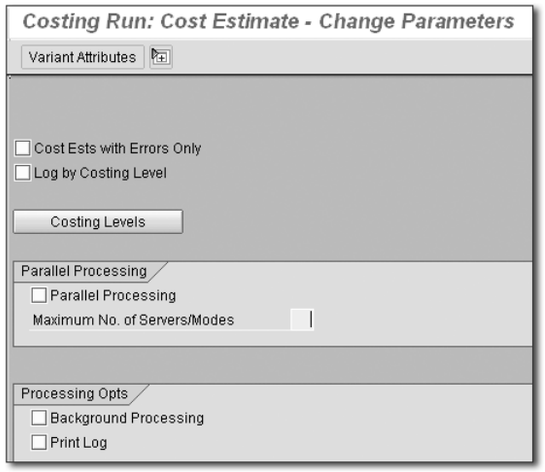

Figure 3.18 Costing Run: Cost Estimate: Change Costing Parameters

In this screen, the COST ESTS WITH ERRORS ONLY indicator works when you have large costing runs that are executed multiple times, and you want to recost only the materials that had errors in previous executions. You should set this parameter only when you are correcting costing runs. For the final costing run (this is the run in which the cost estimate will be released as the standard costing), you should always recalculate all costing levels to make sure the system correctly rolled up the costs. You do not need to select this option if you want to cost all materials selected for the costing run in the first step.

Additionally, take note of the LOG BY COSTING LEVEL indicator. A costing level represents the sequence in which the materials are costed. The LOG BY COSTING LEVEL indicator determines, in case of an error in the costing estimate, whether the system should save the error log by each level. Because our example is very simple, and we are not calculating costing for a large number of materials, this indicator is not necessary.

You can select the PARALLEL PROCESSING indicator to execute the calculation in more than one server if you have a large number of materials to calculate the cost estimate (again, this is the not the case for our example). Now, save the parameters and go back to the previous screen by clicking the green arrow icon. Then click the EXECUTE icon in the COSTING row. After executing the costing calculation, the system displays the status, number of materials costed, number of materials costed with errors, and the number of materials that have yet to be costed.

Analysis

After executing the costing step, you can generate a report that enables you to process and analyze the costing results. First, click the PARAMETER icon analysis row to open a selection screen as shown in Figure 3.19. The costing run name and date show by default in your selection.

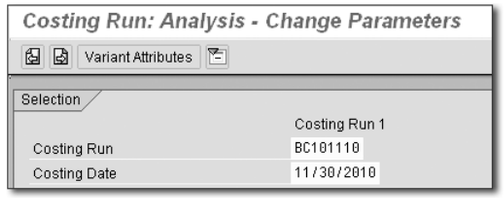

Figure 3.19 Costing Run: Analysis – Change Parameters

Save these parameters and click the green arrow icon to navigate to the previous screen. Now you can run this step by clicking the EXECUTE icon in the ANALYSIS row.

The system now displays the list of cost estimates created by the costing run. Figure 3.20 shows the list of cost estimates for all materials selected by our costing run.

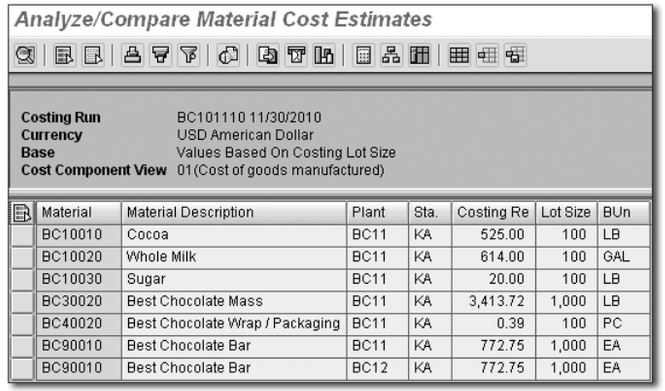

Figure 3.20 Analyze Material Cost Estimate

Figure 3.20 shows the list of all materials, descriptions, plants, costing status, cost calculation results for the lot size, and base unit of measure. To see the detailed information for each material cost estimate, you can choose one of the following options:

- Select any line, and choose DISPLAY COST ESTIMATE in the GOTO menu.
- Double-click in the MATERIAL line.

Now let's look at the costing detail for the Chocolate Bar material in plant BC11. To do that, double-click in the material BC90010 line. You will see the DISPLAY MATERIAL COST ESTIMATE WITH QUANTITY STRUCTURE screen as shown in Figure 3.21. The multilevel costing structure appears on the left side of the screen and is based on the top-level material costing lot size.

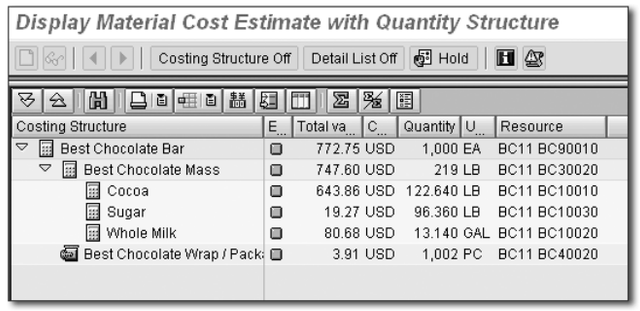

Figure 3.21 Material Cost Estimate: Costing Structure

Figure 3.21 shows the cost estimate to produce 1,000 units of Best Chocolate Bars and all materials used to compose its cost estimate, the quantity of materials required, and each material's respective unit of measure. Now let's see other screen areas within the same transaction.

In the same screen, you can also see the details of the cost estimate on the right side. Figure 3.22 shows the itemization of expenses (total and fixed costs associated with each resource) that composes the chocolate bar production cost presented in the bottom-right side of this transaction. This view shows the resources and quantities that are used to produce the chocolate bars and the cost elements associated with each resource.

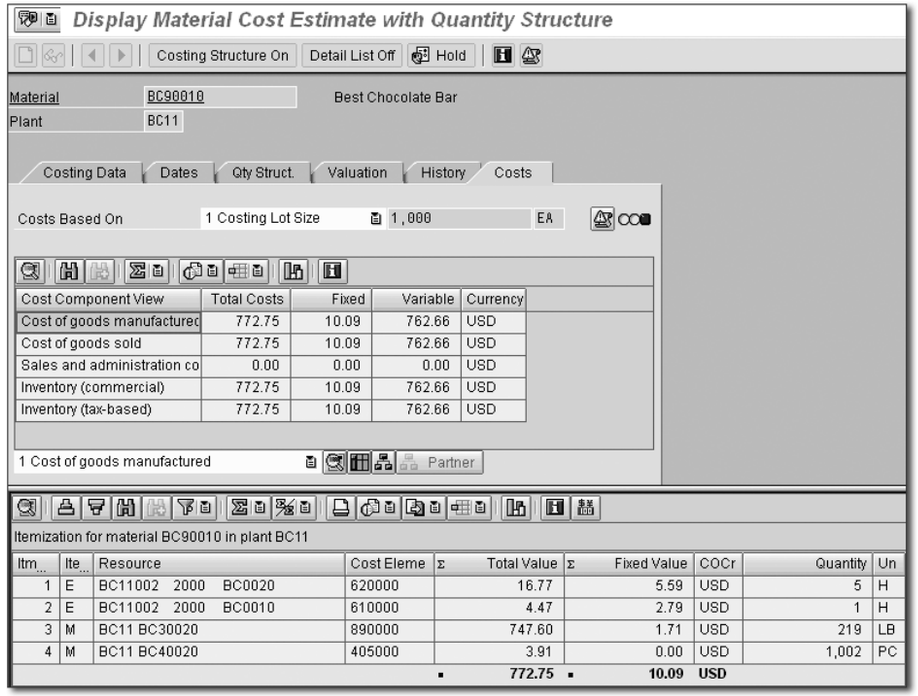

Figure 3.22 Material Cost Estimate: Itemization

Cost Components

In the same screen, you can also see the costing component view by using the menu path COST • DISPLAY COST COMPONENT, pressing F5, or clicking the COST

Component icon . Figure 3.23 shows the cost components with their respective total and fixed costs for the chocolate bars.

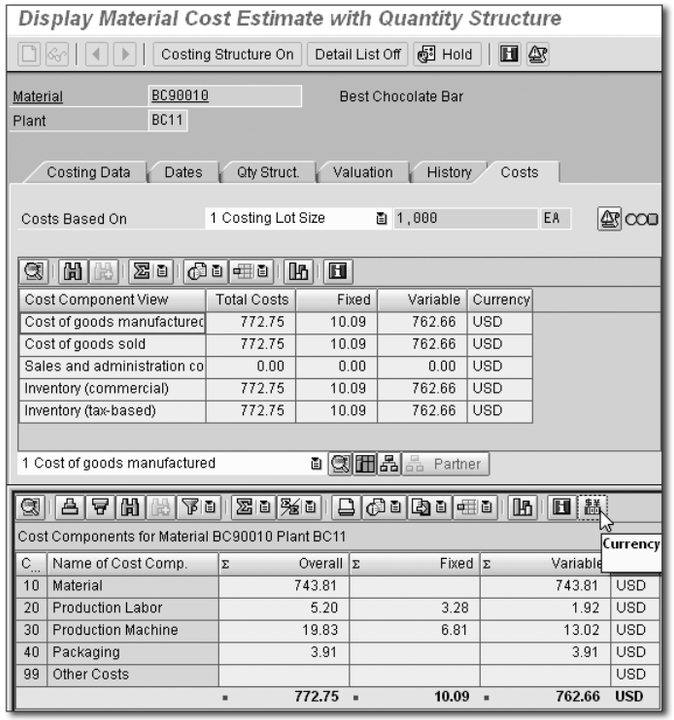

Figure 3.23 Display Material Cost Estimate: Cost Components in USD

In this view, you can see the costing breakdown into the components that we have configured in the discussion on activity rates in Section 3.3. If you click the currency icon in the bottom-right side of Figure 3.23, you can choose the currency for this report.

Note

You will be able to see this icon and perform the cost component report in the controlling area currency only if you have completed the configuration described in Section 3.4.2.

Figure 3.24 shows the cost component view, in the same Display Material Cost Estimate screen, in EUR after choosing the controlling area currency in Figure 3.23.

Figure 3.24 Display Material Cost Estimate: Cost Components in EUR

You can go back to the itemization view by clicking the magnifying glass icon .

Now that we have reviewed the Display Material Cost Estimate with Quantity Structure screen and the report views you can select in this transaction, let's go back to the costing run and execute the next steps to conclude the costing process. To go back to the costing run, click the green arrow icon. It will take you back to the screen shown in Figure 3.20. Click the green arrow icon again to get back to the costing run.

Mark Standard Price

After you have created a standard cost estimate without errors, you can update the future standard price in the material master with the new value. This process in SAP ERP is called *mark standard price*. To execute it, you first need to select your options for the parameters in the MARK row in the costing run and save it. Then click the EXECUTE icon.

Figure 3.25 shows the result of the marking step. Note that there are two lines for each material and plant combination: one in USD and the other in EUR. This occurs because the Material Ledger is active, and these are the two Material Ledger currencies in our example. You will see more information on the Material Ledger currencies in Chapter 4.

Price Update: Mark Standard Price

Ex...	Material	Plant	Costi...	Fut. plnd price	Standard price	Price Unit	Currency
	BC10010	BC11	VO	525.00	525.00	100	USD
	BC10010	BC11	VO	393.75	393.75	100	EUR
	BC10020	BC11	VO	614.00	614.00	100	USD
	BC10020	BC11	VO	460.50	460.50	100	EUR
	BC10030	BC11	VO	20.00	20.00	100	USD
	BC10030	BC11	VO	15.00	15.00	100	EUR
	BC30020	BC11	VO	3,413.72	3,413.72	1,000	USD
	BC30020	BC11	VO	2,562.80	2,560.29	1,000	EUR
	BC40020	BC11	VO	0.39	0.39	100	USD
	BC40020	BC11	VO	0.29	0.29	100	EUR
	BC90010	BC11	VO	772.75	772.75	1,000	USD
	BC90010	BC11	VO	583.17	579.56	1,000	EUR
	BC90010	BC12	VO	772.75	772.75	1,000	USD
	BC90010	BC12	VO	583.17	579.56	1,000	EUR

Figure 3.25 Price Update: Mark Standard Price

If the Material Ledger is active, the mark step is valid for all currencies configured in the Material Ledger. In Figure 3.25, you can also see that the COSTING STATUS column shows that all values were successfully marked (status "VO").

Release Standard Price

After the mark step, the FUTURE PLANNED PRICE field in the material master data for all costing run materials will be updated with the new cost estimate. To make

the cost estimate become the new material standard price and value the inventory, you will need to execute the release step.

First, go back to the costing run using the green arrow. Select the options for parameters in the RELEASE row, and save the screen. Then click the EXECUTE icon. Figure 3.26 shows the result of the release step in the costing run. Again, note that the prices released are for all currencies configured in the Material Ledger.

Price Update: Release Standard Price

Ex...	Material	Plant	Costing Status	Standard price	Price Unit	Currency
	BC10010	BC11	FR	525.00	100	USD
	BC10010	BC11	FR	393.75	100	EUR
	BC10020	BC11	FR	614.00	100	USD
	BC10020	BC11	FR	460.50	100	EUR
	BC10030	BC11	FR	20.00	100	USD
	BC10030	BC11	FR	15.00	100	EUR
	BC30020	BC11	FR	3,413.72	1,000	USD
	BC30020	BC11	FR	2,562.80	1,000	EUR
	BC40020	BC11	FR	0.39	100	USD
	BC40020	BC11	FR	0.29	100	EUR
	BC90010	BC11	FR	772.75	1,000	USD
	BC90010	BC11	FR	583.17	1,000	EUR
	BC90010	BC12	FR	772.75	1,000	USD
	BC90010	BC12	FR	583.17	1,000	EUR

Figure 3.26 Price Update: Release Standard Price

You also see in Figure 3.26 that all values were successfully released (shows status "FR"). The release of the cost estimate is the last step in the costing run. You can see the result of this step by looking at the material master.

Figure 3.27 shows the ACCOUNTING 1 view in the material master data for BC90010 in plant BC11 in period 001/2011. Because the price control of this material is S (standard), all goods movements of BC90010 are valuated with the price of USD 772.75 and EUR 583.17 over period 01.

You can access the material master data by calling Transaction MM03 or by following the menu path LOGISTICS • MATERIALS MANAGEMENT • MATERIAL MASTER • DISPLAY.

Note that the STANDARD PRICE fields in USD and EUR were updated with the values from the release process that was shown previously in Figure 3.26. These are the values that the system will use to value all material movements and inventory.

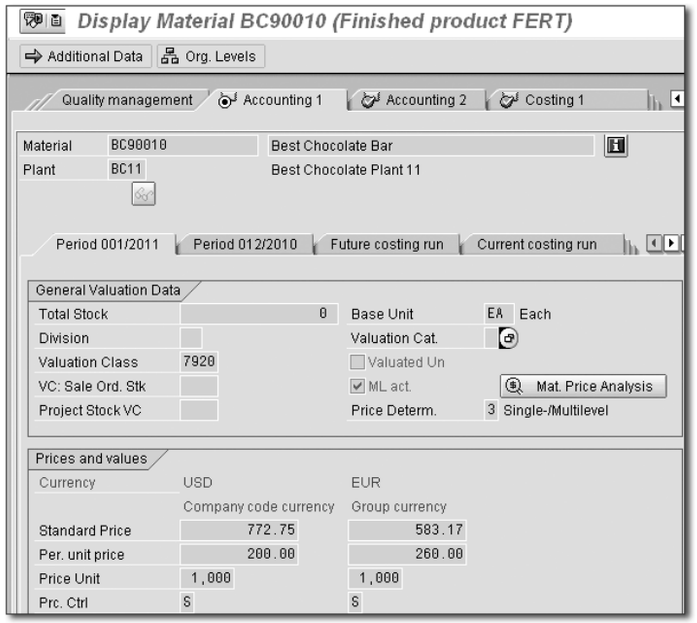

Figure 3.27 Display Material Master Data: Accounting 1 View

3.6 Summary

This chapter provided an overview of the most relevant material master data and configurations in product cost planning. First, we discussed the business case that is used as an example in this book. We explained the enterprise's organizational structure, giving details on how operation concerns, controlling area, company codes, and plants are assigned. Next, you will read about some of the controlling and logistical master data that are used in the product costing composition.

We also examined the two most relevant configuration steps in product cost planning when you use the Material Ledger: cost component structure and activation of the cost component split in the controlling area currency. Finally, we walked through the steps on how to calculate, mark, and release the standard product costing that is used in day-to-day Material Ledger transactions.

In Chapter 4, you will see the basic Material Ledger configuration that makes it possible to work with multiple currencies in inventory and to execute the actual costing calculation.

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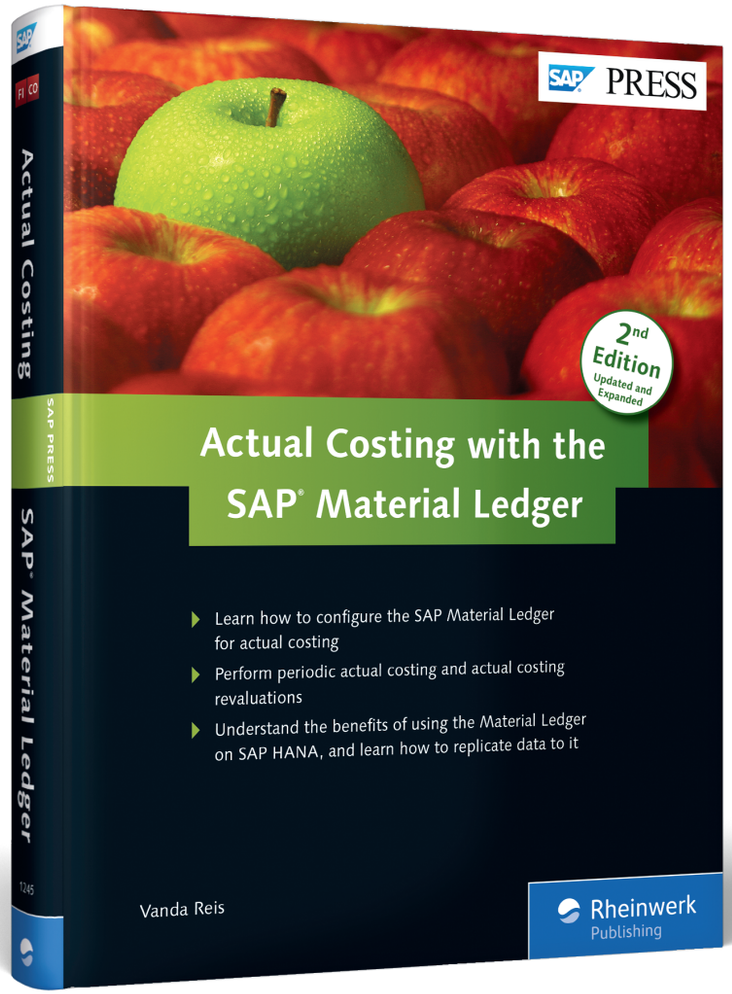

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