Practical Guide to SAP®
Material Ledger (ML)

- **SAP Material Ledger functionality and key integration points**
- **Tips for implementing and using SAP ML effectively**
- **The most important SAP Material Ledger reports, including CKM3N**
- **Detailed steps for executing a multilevel actual costing run**
## Table of Contents

**Preface**

1 **Introduction to SAP Material Ledger**
   1.1 Overview: What is SAP Material Ledger?  
   1.2 Main functions of SAP Material Ledger and general concepts of actual product costing

2 **Key design definitions and important considerations when implementing SAP Material Ledger**
   2.1 Driving factors to implement SAP Material Ledger  
   2.2 Choosing the best inventory valuation method for your company  
   2.3 Material price determination setup  
   2.4 Multiple currencies  
   2.5 Price differences

3 **Configuration for activating SAP Material Ledger and actual costing**
   3.1 Activation of valuation areas for SAP Material Ledger  
   3.2 Assign currency types to SAP Material Ledger type  
   3.3 Currency and valuation profile definition  
   3.4 Assignment of currency type and valuation view of a valuation profile definition  
   3.5 Assignment of currency and valuation profile to controlling area  
   3.6 Create version for group valuation  
   3.7 Assign SAP Material Ledger types to a valuation area  
   3.8 Multiple valuation approaches activation  
   3.9 Maintain number ranges for material ledger documents  
   3.10 Configure dynamic price changes  
   3.11 Material price update  
   3.12 Actual costing configuration

9
## TABLE OF CONTENTS

3.13 SAP Material Ledger as related to automatic account determination 55
3.14 SAP Material Ledger production start-up 66
3.15 SAP Material Ledger settings in COPA 71

4 **Integrated flow of transactional data into SAP Material Ledger** 79
   4.1 Standard cost set-up and cost roll-up process 79
   4.2 Purchase of raw material 83
   4.3 Manufacturing process using product cost by order 86
   4.4 Sales of finished product 89
   4.5 Flow of sales data into COPA 90

5 **Month-end closing process** 93
   5.1 Critical checkpoints throughout the month and during the month-end closing 93
   5.2 Cost center closing process 94
   5.3 Production order closing 103
   5.4 Periodic actual costing run 114

6 **Actual costs review and reporting** 151
   6.1 Manufacturing cost center—zero balance 151
   6.2 CKM3N walkthrough of a finished product analysis status and actual cost results for a material 152
   6.3 Reviewing material master after material ledger close 156
   6.4 Reviewing SAP Material Ledger closing document and general ledger entries 158
   6.5 Price difference accounts after materials ledger closing 161
   6.6 Material price analysis (CKM3N)—integrated view 164

7 **Periodic valuation in COPA** 173

8 **SAP Material Ledger reporting** 181
   8.1 Material list with price and inventory values 181
   8.2 Other useful material ledger reports 183
   8.3 Material ledger document reports 184
   8.4 Drilldown reporting 184
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>List of main SAP Material Ledger tables</td>
<td>187</td>
</tr>
<tr>
<td>10</td>
<td>Overview of advanced and newest SAP Material Ledger functions</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>10.1 Manual change of actual cost component splits</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>10.2 Distribution of usage differences (DUV)</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>10.3 Alternative valuation run (AVR)</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>10.4 Business functions (enhancement packages 5 and 6)</td>
<td>192</td>
</tr>
<tr>
<td>A</td>
<td>The Author</td>
<td>198</td>
</tr>
<tr>
<td>B</td>
<td>Index</td>
<td>199</td>
</tr>
<tr>
<td>C</td>
<td>Disclaimer</td>
<td>202</td>
</tr>
</tbody>
</table>
2 Key design definitions and important considerations when implementing SAP Material Ledger

This chapter dives into discussing the main functions of SAP Material Ledger and how they relate and integrate with finance (FI) and logistic modules such as: MM, PP, and SD. It also covers key design definitions required for a sustainable SAP Material Ledger solution.

This chapter will cover the main prerequisites and set the stage for the next chapter, which deals with configuring SAP Material Ledger with a focus on a long-term solution.

2.1 Driving factors to implement SAP Material Ledger

In today’s competitive business environment, companies demand higher productivity and better cost control to cope with market changes and constant competitive pressure. It is essential that companies have the appropriate tools to make decisions more readily.

Actual costing with SAP Material Ledger allows organizations to compare variances between their standards (best estimates) and their actual costs.

Actual costing provides visibility of up-to-date costs on a monthly basis, offering the company accurate information in up to three currencies and valuation views, which works very well, especially in companies with worldwide operations.

If your product prices are constantly fluctuating or if the region where your company is located is going through high inflation rates, then SAP Material Ledger can also be useful to address continuous variances to standards by providing current costs for decision-making.

Moreover, if your company is a manufacturing company which runs SAP, then SAP Material Ledger is the right tool for you to manage your costs. SAP Material Ledger is part of standard out-of-the-box SAP which is
available for all clients. You just need to configure and activate it according to your business requirements.

2.2 Choosing the best inventory valuation method for your company

Price control indicates the valuation method of a material in a specific plant. There are two types of price control indicators: Standard price (S) and moving average price (V). The price control is assigned to a material in the accounting view of the material master.

- Standard cost is an estimated cost, which is fixed for a period of time according to the company’s definition. Generally, it follows the budget cycle of the company and is determined based on a target of what the expected unit cost of a product is to be, but it can also be changed more often based on internal decisions. Standard price and standard cost terminologies are used interchangeably in this book and is also common in companies that run SAP.

- Moving average price (MAP) is a weighted average cost that changes according to each goods receipt and/or invoice receipt (if invoice differs from purchase price).

Although moving average price reflects the most up-to-date data, it can cause other valuation problems when there is a stock shortage or the stock level is too low for the price difference to be posted, which can lead to unrealistic price as the remaining inventory is adjusted with the total invoice price difference.

Whenever there is a stock shortage, the system cannot allocate the variance (which can be positive or negative), and it remains on the purchase price difference account in the G/L as the system cannot allocate it to the inventory.

When working with moving average price, the timing on which the transaction occurs is critical. For an adequate valuation of the transaction at actual cost, there is a high dependency on the time at which the goods receipt and invoice receipt are posted and a material is issued from inventory.
The same principle applies for variances related to a settlement of a manufacturing order.

As mentioned earlier, when using SAP Material Ledger, materials with standard price control will be adjusted to an actual weighted moving average price at month end, which becomes your periodic unit price (PUP). PUP is discussed in detail during the actual costing closing in Section 5.4.

In an SAP Material Ledger environment, typically all raw materials, semifinished products, or packaging materials used in a multilevel production structure, such as materials used in a manufacturing process (components of a Bill of Materials) are set as standard price (price control S). Maintenance, repairs, and operations (MRO) materials are set as moving average price (price control V) as they are not used in a manufacturing process and therefore not relevant for standard cost valuation.

These definitions and related settings are extremely important to prevent over/under absorption balances on cost centers after the month-end closing. As you will see in Section 5.4, SAP Material Ledger revalues the consumption of materials at month end when there is a price difference to be allocated. Revaluation of consumption is done using the original cost element or an alternate account, as you will see in the configuration Section 3.11.1.

Below is an example of the impact of a material with standard price control and price determination 3 being consumed to a manufacturing cost center.

**Revaluation of material with standard price control consumed to a non-manufacturing cost object.**

Let’s say you set a raw material with a standard price and then it gets consumed to a manufacturing cost center during the month. At month end, when actual costs are calculated and posted during the SAP Material Ledger post-closing step, the cost center will receive an additional amount related to the price difference apportionment. And the cost center that had already been completely absorbed will now have an under/over absorption balance, which requires a manual journal entry to clear out the cost center.
If you are using, or intend to implement SAP Material Ledger, make sure you have the right price control design in place and try not to include materials with standard price consumed to a cost center or to a non-manufacturing cost object to avoid rework at month end. Materials with a standard price should always be used in a production process along with an appropriate cost object such as production order, process order, sales order stock, etc., so that all price differences and revaluations of consumption are fully absorbed automatically by the system, preventing any additional manual clearing process.

2.3 Material price determination setup

The material price determination indicates how the valuation of a material should occur after each business transaction for a material relevant for valuation. If SAP Material Ledger is active, this field has to be set up in the material master using an appropriate combination of price control and material price determination.

If SAP Material Ledger is activated for a valuation area, the accounting 1 view looks slightly different than the regular screen without a material ledger. Additional fields become available when using SAP Material Ledger or split valuation.

The following two price indicator options are available in the material master (accounting 1 view) for price determination. Accounting 1 view contains current valuation data of a material.

- Transaction-based (2)

If you select this option, you can keep your inventory price control indicator as V (moving average) or S (standard price). If the material has price control S, the moving average is calculated for information purposes only, it is not used for valuation as the price control is standard. Materials with the transaction-based indicator option are not considered later in a multilevel actual costing.

- Single/Multilevel (3)

If you choose this option, the price control has to be S (standard price). A moving average (period unit price) is calculated at month end. Single/Multilevel price determination allows you to calculate single and multi-
level price differences and carry them over through a multiple level manufactured production structure.

An appropriate combination of price control and price determination for a multilevel actual costing is shown in Table 2.1.

<table>
<thead>
<tr>
<th>Price control</th>
<th>Price determination indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>V (Moving average)</td>
<td>2 (Transaction based)</td>
</tr>
<tr>
<td>S (Standard price)</td>
<td>3 (Single/Multilevel)</td>
</tr>
</tbody>
</table>

*Table 2.1: Material price determination*

### 2.4 Multiple currencies

Multiple currency definition is a very critical step when designing your product cost system with SAP Material Ledger. Choosing the appropriate valuation that meets the needs of the company has to be carefully decided. The multiple currency function is only available if SAP Material Ledger is active. Once the material ledger is configured and activated *you cannot change* the settings. So, make sure you have the correct currency and valuation combination *before* you activate SAP Material Ledger.

You can manage a maximum of three valuation approaches in two currencies in a parallel valuation. All valuation approaches that you maintain in the currency and valuation profile must also be managed in SAP Material Ledger. The system checks whether the valuation approaches in controlling, the material ledger, and financial accounting, as well as the settings for the company codes, depreciation areas, and plants are consistent with the valuation profile.

In SAP Material Ledger, you can use a combination of currency types defined in financial accounting and controlling.

As mentioned earlier, the combination of currency and valuation is called as a multiple valuation approach. The SAP recommendation is to use the group currency as the controlling area currency to ensure compatibility of information throughout the materials management, financial accounting, and controlling components.

For illustration purposes, a couple of examples of currency type and valuation combination setup are shown below. See Figure 2.1 for an exam-
B  Index

A
Account grouping  57
Activation of valuation area of Material Ledger  29
Activity type price report  102
Actual activity price calculation  99
Actual BOM (Multilevel quantity structure report)  167
Actual cost component split concept.  17
Actual cost splitting for cost centers  96
Actual costing closing steps  93
Actual costing configuration  48
Actual Costing with Material Ledger key considerations  19
Actual weighted average  14
Advanced Material Ledger functions  189
Alternative valuation run  190
Assignment of currency types to Material Ledger type  32

B
Business function Parallel Valuation FIN_CO_COGM  193
Business function Stock in transit LOG_MM_SIT  195
Business functions  192
Business transaction  38

C
Checking material ledger relevant settings  67
Configuration of Material Ledger  29

Controlling level  51
Controlling Module (CO)  12
Cost Center allocations  95
Cost center report  151
Cost Component Split report  164
Cost splitting structure  98
Costing key  73
Cross-company code actual costing functionality  195
Currency and valuation profile configuration  33

D
Display of WIP for Actual Costs  169
Distribution of inventory differences  190
Dynamic Price changes  42

E
Exchange rate at Settlement of production order  16
Exchange rate at time of marking a standard cost:  16
Exchange rate on Invoice receipt postings  16

F
Flow of sales data into COPA  90

H
Historical exchange rates  16

I
Inventory valuation method  20
M
Manufacturing process example 86
Material Ledger Automatic account determination 55
Material Ledger closing document and general ledger entries 158
Material Ledger data collection 17
Material ledger document 38
Material ledger document reports 184
Material Ledger drilldown reporting tool 184
Material ledger information system 181
Material Ledger Production Startup 66
Material Ledger settings in COPA 71
Material Ledger Tables 187
Material master after material ledger close – Accounting view 156
Material movement 56
Material price analysis of a finished product in CKM3N 152
Material price determination 22
Material Price Update 43
assign the movement type groups 45
movement type groups 44
Revaluation of consumption 44
Material Price Update
Material update structure 47
Material Price Update
Assign material update structure to valuation area 48
Multilevel price determination 130
Multiple currency 23
Multiple currency valuation 15
Group Valuation 15
Local Currency 15
Profit Center 15
Multiple valuation approach activation 37
O
Operating concern 75
Order balances and variances report 113
Other useful material ledger reports 183
Over/under absorption balances 21
P
Periodic Actual costing closing cockpit 114
Periodic Unit Price (PUP). 14
Periodic Valuation in COPA 173
Post Closing 146
Preliminary valuation 16
Price control 20
Moving Average Price (V) 20
Standard Price (S) 20
Price difference accounts reconciliation 161
Price differences 14
Debit and Credit entries 26
Exchange rate differences 25
Initial entry of stock balances 26
Manufacturing variances 25
Purchase price variance 25
Stock transfer variances 26
Price indicator 22
Single-/Multilevel (3) 22
Transaction-Based (2) 22
Procurement alternatives 17
Product costing 13
Production order closing 103
Work in process (WIP) calculation 103
Production Order settlement 109
Purchase of a raw material with a purchase price variance scenario 83

R
Revaluation of consumption 134

S
Sales process example 89
Selection step 117
Sequence determination 122
Single-level Material Price Determination 124
Standard cost 11, 13
Standard cost calculation 80
Standard cost roll up 80

T
Transaction currency 16
Transaction key 56
Translation procedure 16

V
Valuation approach 15
Valuation class 55
Valuation grouping code 56
Valuation strategy 72
Valuation view 34
Value Flow Monitor 142
Variance calculation 106
Variance category 106
Version for Group Valuation 35

W
WIP revaluation 54, 138