

Reading Sample

In this reading selection, you'll be introduced to a few important tools in the quality management process. Chapter 3 builds on your master data to put quality inspection processes into place in your system; this sample highlights the business processes and optimization features. Chapter 19 highlights a few important parts of quality control: vendor evaluation and quality levels.

-  **"Quality Inspection"**
"Quality Control"
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-  **The Author**

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Quality Management with SAP

883 Pages, 2015, \$79.95/€79.95

ISBN 978-1-4932-1203-3

 www.sap-press.com/3755

Quality inspection entails automatic or manual inspection lot creation, results recording, making usage decision, and stock posting (if applicable). Multiple specifications functionality brings many more choices to quality planning and quality inspection.

3 Quality Inspection

Continuing with the quality planning master data that you set up in Chapter 2, this chapter delves into turning the same quality planning setup into quality inspection. Quality inspection is a series of business process steps that the users undertake to perform inspection of a material, record any defects found, and take appropriate decision to use the material in further logistics and supply chain functions.

Figure 3.1 illustrates a straightforward business process of quality inspection. The process begins when the system automatically or business user manually creates an inspection lot ❶, which is the beginning of the necessary inspection process. The quality inspector records the inspection results ❷, records any defects ❸, and makes usage decision ❹. The results recording step is the actual and factual data entry of results of each characteristic that is slated for inspection. The inspection results help you decide whether to use the material for further processing, such as in procurement, production, or sales. The stock posting ❺ is the last step in quality inspection and determines whether the stock kept in quality inspection will be released to unrestricted use, blocked, scrapped, or returned to the vendor. Several inspection types are not stock based; that is, no stock posting is required, and the quality inspection process ends with usage decision only.

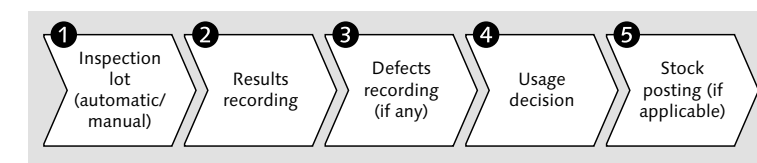


Figure 3.1 Inspection Lot Processing

This chapter explores several optimization and productivity enhancement options available for quality inspection and quality planning. Then, it covers material specifications, which is an intuitive and user-friendly functionality that caters to the specific needs of process industries. Next is the case study that lets you configure a new inspection type, maintain its master data, and execute the business processes of quality inspection. Finally, this chapter covers the combined configuration basics of quality planning and quality inspection.

3.1 Business Processes in Quality Inspection

As already explained, the business processes of quality inspection covers the following:

- ▶ Inspection lot
- ▶ Results recording
- ▶ Usage decision
- ▶ Stock posting
- ▶ Defects recording
- ▶ Inspection report

We'll discuss each in the following sections.

3.1.1 Inspection Lot Creation

When the system or the user creates an inspection lot in the system, the inspection lot requires an inspection plan or material specification to calculate the sample size. This sample size is then used for results recording and making usage decision. However, if the system is unable to calculate the sample size due to a missing or invalid inspection plan or material specification, you can't record results or take usage decision of the inspection lot.

To view the details of the inspection lot, use Transaction QA02 or the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT PROCESSING • CHANGE. Figure 3.2 shows inspection lot 3193 of material 2037 for batch 0000000435, which the system automatically creates at the end of the procurement process. Here, the code for the vendor from whom the company procured the material is 1000. One of the system statuses for the inspection lot 3193

is CHCR, which means that the inspection plan (or material specification) is missing. We already explained that unless the system is able to assign an inspection plan to an inspection lot to calculate its sample size, you can't record results or take usage decision.

Figure 3.2 Inspection Lot

Choose the INSP. SPECIFICATIONS tab, shown in Figure 3.2, to go to Figure 3.3. Here, the system expects to manually or automatically assign the inspection plan with the usage 5. Usage 5 indicates that the inspection plan is for goods receipt against a purchase order. Because the system was unable to find the inspection plan for usage 5, the lower half of the ASSIGNED SPECIFICATIONS area is blank. Similarly, another possible reason could be the KEY DATE. The system needs to find and be able to assign a valid inspection plan on the key date. Recall from Chapter 2 that during inspection plan creation, the key date was 07.11.2014 (November 07, 2014), whereas the key date that you see in Figure 3.3 is 01.11.2014 (November 01, 2014). Hence, on this date (November 01, 2014), the system is unable to find a relevant or active inspection plan and is therefore unable to assign it to the inspection lot to calculate sample size.

[+] Tips & Tricks

During an SAP ERP implementation project, it's generally a prudent practice to agree to a key date that's in the *past* to avoid the missing plan error on the key date.

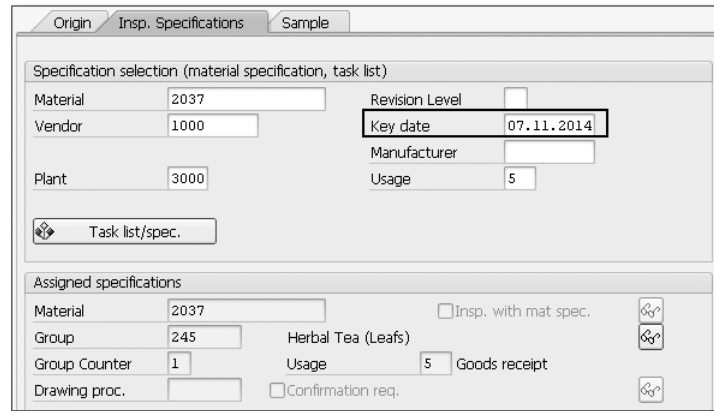


Figure 3.3 Assigned Specifications

Here are several options to troubleshoot and manually assign an inspection plan to the inspection lot with a missing inspection plan. These options are as follows:

- ▶ You can select a different material in the MATERIAL field and assign its inspection plan to this inspection lot. For example, tea bags and tea packs are different materials but if they have the same inspection plan, you assign one to the other.
- ▶ You can also keep the material the same (2037) but use a different plant for which an inspection plan exists and assign that plant-specific inspection plan to this inspection lot.
- ▶ You can select an inspection plan for the same material but a different usage and assign it to this inspection lot. For example, if no inspection plan with usage 5 exists, but one with usage 9 (material check) exists, you can enter it in the USAGE field.

For this example, change or overwrite the key date to 07.11.2014, as shown in Figure 3.3, and then click the TASK LIST/SPEC. button. The system assigns the inspection plan whose details you see in the ASSIGNED SPECIFICATIONS area. Group 245 and group counter 1 are the same that you created in Chapter 2.

Calculate Sample Size

With inspection specifications assigned, you can now proceed to calculate a sample size of the inspection lot. Choose the SAMPLE tab and you'll see that the sample size is zero. Click the SMPL. (sample calculation) button. The system calculates the sample size as 100, as shown in Figure 3.4, and displays a message at the bottom of the screen. The system also updates the status of the inspection lot to CALC.



Figure 3.4 Calculated Sample Size

Save the inspection lot. With the inspection plan assigned and the sample size calculated, you can now proceed to record the results of the inspection lot and take a usage decision.

Status Monitoring

Whenever you or the system performs any business functions, the system automatically updates the status of the inspection lot. It makes sense to monitor these statuses because they reveal important details. It's particularly useful in the search for shortcomings, when the system doesn't behave as you expect it to. Table 3.1 shows the long text of the statuses, which you can display by choosing EXTRAS • INSPECTION LOT STATUS or clicking the blue icon located right next to the SYSTEM STATUS field.

Status	Meaning	Status	Meaning
CALC	Sample calculated	PREQ	Plan/specification
CCTD	Inspection characteristics created	PRII	Inspection instruction printed

Table 3.1 Status Long Texts

Status	Meaning	Status	Meaning
CHCR	Characteristic must be created	PRSI	Sample-drawing instruction printed
CROK	Certificate receipt confirmed	QLCH	Quality level relevant
CRTD	Created	REL	Released
CTCM	Certificate confirmation missing	RREC	Results confirmed
DEF	Defects were recorded	SKIP	Skip lot
DU	Used decision made	SPCO	Stock posting completed
FLEX	Specifications assigned	SPRQ	Quantity posting
ICCO	All inspections completed	STIC	Short-term inspection
INSP	Inspection active	STUP	Statistics updated
PASG	Plan/specification		

Table 3.1 Status Long Texts (Cont.)

3.1.2 Results Recording

In this step, you enter or record results on an inspection lot. In results recording, the system automatically or manually values each entered result as either accepted or rejected, depending on the master data setup (inspection planning). Also available are the graphical representation of different results recording, along with other important historical values.

To record results of an inspection lot, operation, or inspection point, use Transaction QE51N or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • RESULTS RECORDING. Figure 3.5 shows the initial parameters selection screen for RESULTS RECORDING WORKLIST, which consists of various tabs that allow you to enter specific parameters so that the system brings up only the relevant data in the worklist for you to work on. This worklist is intuitive in that it lets you search for and record results of various inspection types, including inspection lots created for physical samples, equipment, or functional locations.

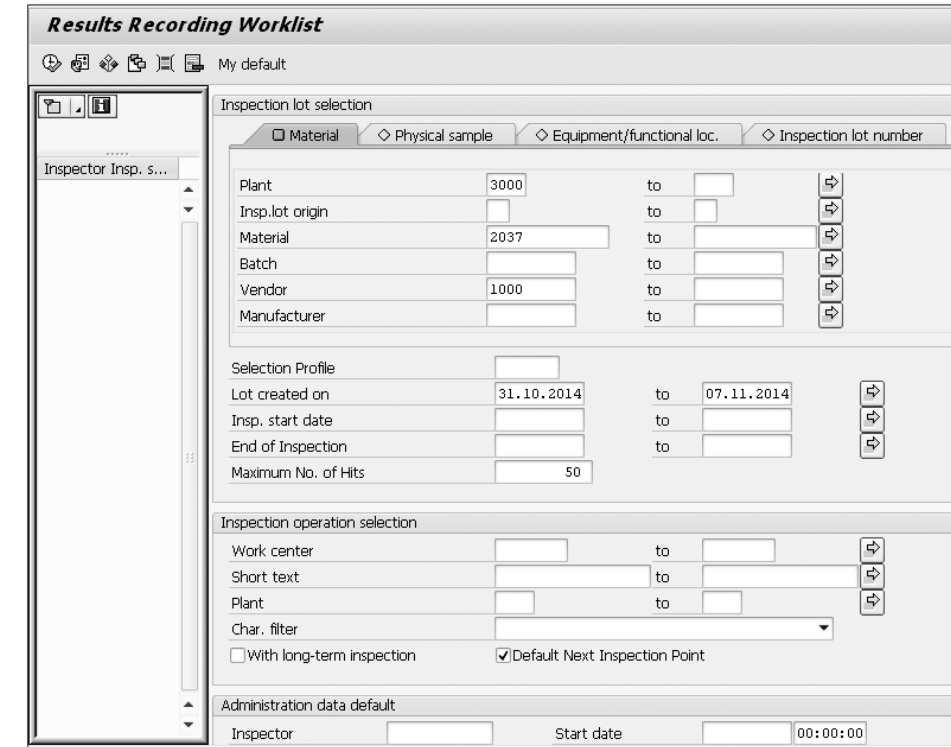


Figure 3.5 Results Recording Worklist

Enter plant 3000, plant 2037, and vendor 1000 and choose EXECUTE, and Figure 3.6 appears. Here you see characteristic 10 and based on the sampling procedure from Chapter 3, the system calculates 10 KG (column INSPECT). Since this characteristic stipulates recording individual results (as opposed to summarized results), enter 10 individual (single) values in the RESULT column. Based on the characteristic's specifications and the fact that each value is within or outside it (the specifications), the system values each recorded result's value as either accepted or rejected. Notice column V (valuation): the green checkmark indicates accepted valuation, while the red cross mark represents rejected valuation. The last column (DEFECT) also categorizes each rejected result with the relevant defect code. The system also calculates the average value of the MIC as 104.0.

A.	R.	Char.	S.	Short text for the inspection cha...	Specifications	Inspect	Inspec...	S.	Result	C.	Original ...	V.	Defec...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	103		Herbal Tea (Leafs) - Aroma	90 ... 110	10	10		104.0			✗	01 Cr...
									111	111		✗	02 Ma...
									98	98		✓	
									99	99		✓	
									100	100		✓	
									101	101		✓	
									121	121		✗	02 Ma...
									111	111		✗	02 Ma...
									102	102		✓	
									99	99		✓	
									98	98		✓	

Figure 3.6 Results Recording and Valuation

Referring to column S. (status) in Figure 3.6, Table 3.2 explains the processing status of characteristics, and the content of processing status is self-explanatory. These statuses change as you perform the necessary business function.

Status	Description
0	Can be processed
1	Must be processed
2	Processed
3	Valuated
4	Skip
5	Processing is completed
6	Transfer characteristic to subsystem
7	Fixed (cannot be processed)
9	Blocked for evaluations
A	Rqd. char. when controlling char. accepted
B	Rqd. char. when controlling char. rejected

Table 3.2 Status of Characteristic



Note
We suggest that you explore the icons and their available functions in the menu bar of the characteristics and the various tabs. For example, you can check the completeness

and correctness of the results entered for a characteristic by choosing the CHECK icon. Similarly, you can lock or unlock results recording by choosing the relevant options in Figure 3.6.

Figure 3.7 appears when you choose characteristic 20 and then DETAILS. The details on what you need to inspect are available on the left-hand side, under the SPECS: FIXED INSP. SCOPE area. The right-hand side of the screen shows that the system creates three classes with accepted valuation and is based on the characteristic's settings that you made in Chapter 2. These accepted valuation are denoted by the green checkmarks. All inspection results that fall or lie within these classes are denoted by red cross marks. For this example, enter the inspection results as entered in the CLASS SIZE column to ensure that the overall inspected sample size is 10 KG. Remember that in this step, the system also automatically creates quality notifications if it finds inspected results with rejected valuations.

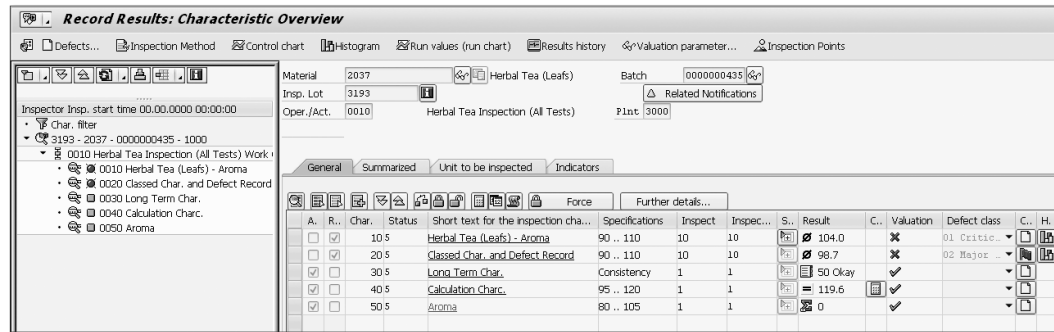
The RESULTS area on the lower left-hand side of the screen provides you with a complete summary of inspection results. Since 4 KG of the total 10 KG is in the non-conformance range (see NONCONFOR.), the system creates a defect notification.

Specs: Fixed Insp. Scope	C..	LowerClassLimit	UpperClassLimit	Class size	V.	Defect class	Attribute
Inspect 10 * 1.00 KG	1	45	90	2	✗	02 Major def...	< Less than or
Upper lim. 110	2	90	97	3	✓		
Targ. Value 100	3	97	103	2	✓		
Lower lmt. 90	4	103	110	1	✓		
	5	110	220	2	✗	02 Major def...	> Greater than

Results			
Inspected	10	Nonconf.	4
No. above	2		
Mean value	98.7	/	9.8
No. below	2		

Figure 3.7 Results Recording of Classed MIC

Figure 3.8 shows an overview of all five characteristics. Notice the column C... for the second characteristic (20): it has a red flag to denote that the system created a quality notification for this characteristic having a defect.



Let's now evaluate characteristic 40 (calculated characteristic). According to the calculation formula for characteristic 40, it's to consider the average value of characteristic 10, which in this case is 104.0, and multiply it with 1.15 to come up with the result 119.6 ($104.0 \times 1.15 = 119.4$). Also, see the associated calculator icon in the column C of characteristic 40.

Characteristic 50 (Aroma) shows the specifications that are unique and applicable to vendor 1000 only (quickly refer to Figure 2.28 again). This is due to the material assignment and dependent characteristic settings that you set up for characteristic 50 in Chapter 2.

[+] Tips & Tricks

You can also create defects during results recording by choosing DEFECTS... in Figure 3.8.

Next, choose the first characteristic in Figure 3.8, and then choose RUN VALUES (RUN CHART), and Figure 3.9 appears.

Figure 3.9 is the graphical representation of the characteristic 10, and like in most graphical objects, you can display and manipulate the data or graphical objects to meet your specific business needs.

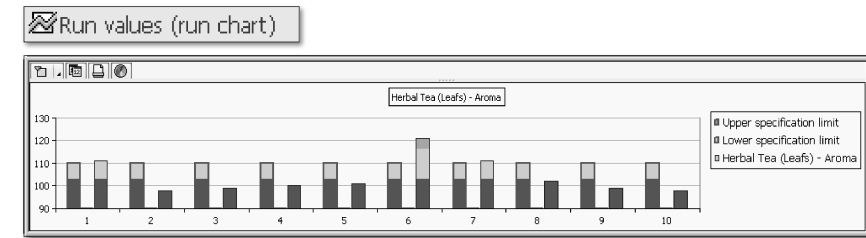


Figure 3.9 Run Values (Run Chart)

Tips & Tricks

There are many more data and graphical views available that you can explore in Figure 3.8, such as control chart, histogram, and results history.

Variants for Results Recording

Following are the transactions for different variants for results recording; all are available through the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • VARIANTS FOR RESULTS RECORDING:

- ▶ For physical samples: Transaction QE52
- ▶ For all inspection lots: Transaction QE72
- ▶ For inspection points: Transaction QE71
- ▶ For master inspection characteristics: Transaction QE73

Remember that you can also use Transaction QA32 (Worklist for Inspection Lots) for results recording and taking usage decision. Refer to Chapter 18 on reporting, which covers Transaction QA32 and its features in detail.

Note

While you can use any variant of results recording that meets your business needs, we'll use Transaction QE01 for this purpose and for the rest of this book.

3.1.3 Usage Decision

Now that results and defects (if any) are recorded for an inspection lot, the final steps are to make a decision to use the material, which is known as *usage decision*

(UD), as well as perform a stock posting of an inspection lot. The stock posting transfers the stock placed in quality inspection into unrestricted-use stock. The stock posting depends on the inspection type and inspection origin.

To record the usage decision of an inspection lot, use Transaction QA11 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT • USAGE DECISION • RECORD. The screen that appears provides an option to enter a usage decision of a single inspection lot. However, there are several other options available to efficiently manage the task of performing a usage decision. The various icons (discussed in Section 3.2) located in the menu bar are as follows:

► **MASS USAGE decisions**

This ensures that, for all inspection lots in which the QM user needs to assign a single "accepted" code to several inspection lots, the user can do so on a single screen and with one transaction.

► **QUANTITY POSTING REQUIRED**

The entire activity of recording usage decision stipulates two steps—the first step is to assign a usage decision code to an inspection lot, and the second step is to perform stock posting. This option is available to business users; the usage decision code is already assigned to an inspection lot (the first step is already performed), but the user still needs to perform the second important step of stock posting (the second step). All such open inspection lot quantities are available in the form of a worklist to work on.

► **UD NOT TAKEN YET** 

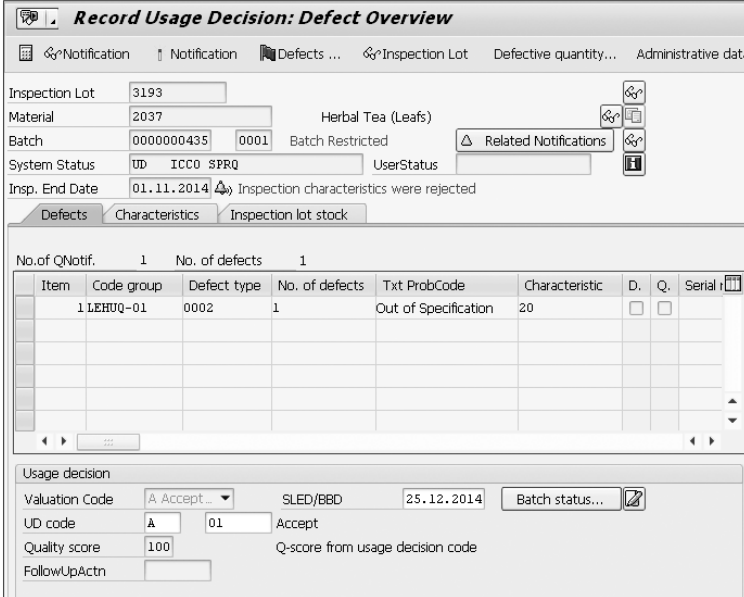
This option brings up a complete worklist of all the inspection lots in which the QM user needs to take usage decision.

► **INSPECTION LOTS WITHOUT COMPLETION**

A complete worklist of all inspection lots that are incomplete in one form or another and are therefore open.

For this example, enter inspection lot 3193 and press **Enter** so that Figure 3.10 appears.

Here, you see the DEFECTS tab, which appears only when the system records any defects during results recording. Moreover, you can also record defects during usage decision by choosing DEFECTS... or create and activate a quality notification by choosing ACTIVATE NOTIFICATION.



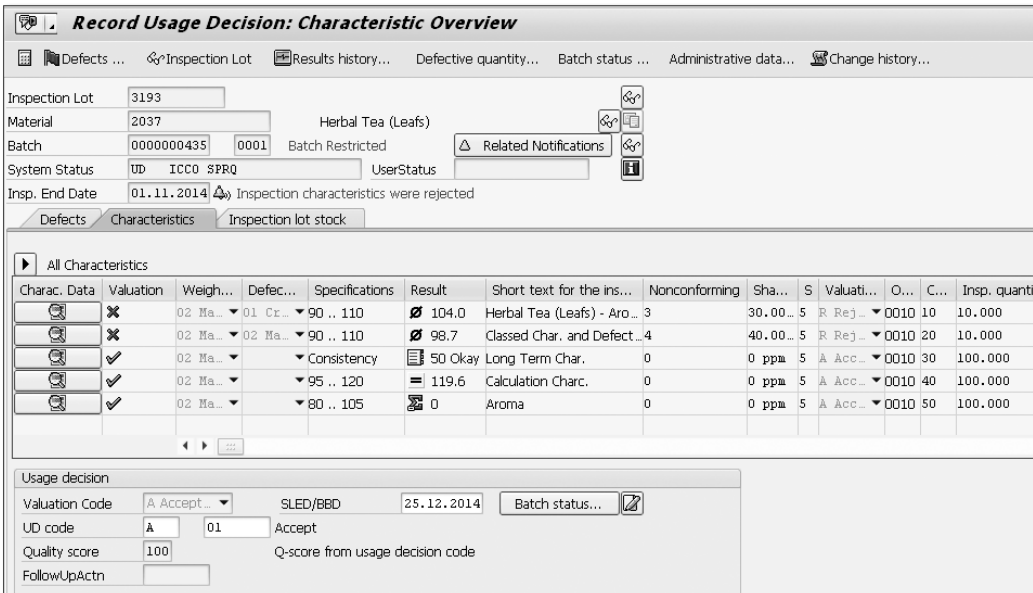
Record Usage Decision: Defect Overview

Inspection Lot: 3193
 Material: 2037 Herbal Tea (Leafs)
 Batch: 000000435 0001 Batch Restricted
 System Status: UD ICCO SPRQ UserStatus
 Insp. End Date: 01.11.2014 Inspection characteristics were rejected

Item	Code group	Defect type	No. of defects	Txt ProbCode	Characteristic	D.	Q.	Serial
1	LEHUQ-01	0002	1	Out of Specification	20	<input type="checkbox"/>	<input type="checkbox"/>	

Usage decision
 Valuation Code: A Accept SLED/BBDD 25.12.2014 Batch status...
 UD code: A 01 Accept
 Quality score: 100 Q-score from usage decision code
 FollowUpActn:

Figure 3.10 Usage Decision




Record Usage Decision: Characteristic Overview




Inspection Lot: 3193
 Material: 2037 Herbal Tea (Leafs)
 Batch: 000000435 0001 Batch Restricted
 System Status: UD ICCO SPRQ UserStatus
 Insp. End Date: 01.11.2014 Inspection characteristics were rejected

Charac. Data	Valuation	Weigh...	Defec...	Specifications	Result	Short text for the ins...	Nonconforming	Sha...	S	Valuati...	O...	C...	Insp. quantity
✗	02 Ma...	01 Cr...	90 .. 110	104.0	Herbal Tea (Leafs) - Aro...	3	30.00...	R Rej...	0010	10	10.000		
✗	02 Ma...	02 Ma...	90 .. 110	98.7	Classed Char. and Defect...	4	40.00...	R Rej...	0010	20	10.000		
✓	02 Ma...		Consistency	50 Okay	Long Term Char.	0	0 ppa	A Acc...	0010	30	100.000		
✓	02 Ma...		95 .. 120	119.6	Calculation Charc.	0	0 ppa	A Acc...	0010	40	100.000		
✓	02 Ma...		80 .. 105	0	Aroma	0	0 ppa	A Acc...	0010	50	100.000		


Usage decision
 Valuation Code: A Accept SLED/BBDD 25.12.2014 Batch status...
 UD code: A 01 Accept
 Quality score: 100 Q-score from usage decision code
 FollowUpActn:

Figure 3.11 Characteristics in Usage Decision

Choose the CHARACTERISTICS tab to see the screen in Figure 3.11. Here, the summarized results recording are available for evaluation before the user takes a usage decision. You can expand the characteristic details by choosing ALL CHARACTERISTICS .

Place the cursor on UD CODE and press  or the choose dropdown option. The pop-up that appears provides a list of options available to the user to choose a usage decision code. Each UD code values the inspection lot as either accepted (denoted by ) , or rejected (denoted by ). The UD code also internally assigns a quality score to help in overall quality calculation of vendor-delivered material. These quality scores form the basis of future procurement decisions with a vendor. Quality scores automatically get updated with each usage decision. The relevant quality score is not shown until the user makes a selection of the UD code.

Choose UD CODE A, and the system automatically also assigns its associated catalog or selected set 01. With UD code A assigned, the system automatically assigns the corresponding quality score of 100 (see Chapter 19 for more information on quality scores).

Depending on the settings made in the material master, the system automatically calculates and incorporates SLED/BBD (shelf life expiration date/best-before date), or you can enter it manually. You also have the option to enter long text of UD by choosing  to enter any additional details.

3.1.4 Stock Posting

In the INSPECTION LOT STOCK tab shown in Figure 3.12, you enter the inspection lot quantity into one of the several options available to perform the stock posting. These options are as follows:

- ▶ **TO UNRESTRICTED USE**
The quantity placed in quality inspection is available as free to consume.
- ▶ **TO SCRAP**
The company destroys some or all of the quantity placed in quality inspection due to the defective quality of the material. The scrapped quantity is charged to the relevant cost center that you assigned in configuration.
- ▶ **TO SAMPLE USE**
Either the system or the user can enter some quantity of material consumed as samples.

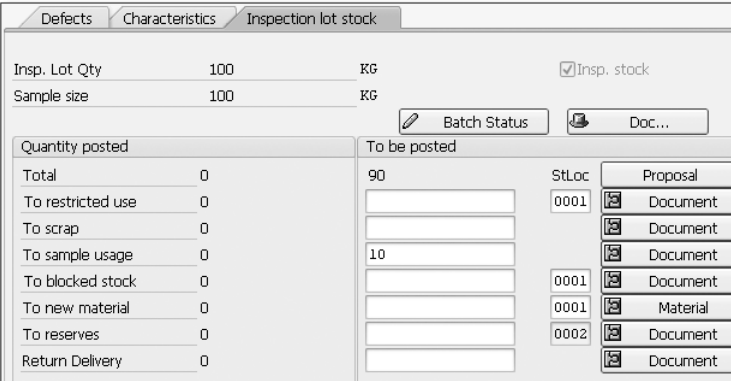
- ▶ **TO BLOCK STOCK**
Some or all of the quantity placed in quality inspection is placed in blocked/restricted use stock. This stock is not available to use.
- ▶ **TO NEW MATERIAL**
You can perform transfer posting of one material into another material after evaluating that the material fits more with the new/different material than the original material.
- ▶ **TO RESERVES**
You can assign some quantity to reserve stock for subsequent use.
- ▶ **RETURN DELIVERY**
You decide to return complete or partial quantity to the vendor due to defective quality or noncompliance with specifications.

Tips & Tricks

Right next to each stock type, you can choose details to view or change default information. For example, you can choose the DETAILS icon of the TO SCRAP field and change the default cost center.

[+]

In Figure 3.12, the system shows that out of 100 KG of inspection lot quantity (INSP. LOT QTY), you can post up to a quantity of 90 KG to unrestricted use stock (or any other stock type available), while the system automatically calculates the sample use of 10 KG.

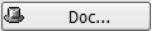


Quantity posted		To be posted	
Total	0	90	StLoc
To restricted use	0		0001
To scrap	0		0001
To sample usage	0	10	0001
To blocked stock	0		0001
To new material	0		0001
To reserves	0		0002
Return Delivery	0		

Figure 3.12 Inspection Stock Posting

This sample calculation is based on the settings that you made for the relevant characteristic (MIC). You can enter any combination here that reflects the actual stock posting that you want to perform. For example, you can delete the sample-use quantity of 10 KG, and post the entire 100 KG of inspection lot quantity to unrestricted use or blocked stock.

For this example, enter the unrestricted use as 90 and sample usage as 10.

Choose DOCUMENT HEADER DATA , and Figure 3.13 appears. If you need to change the document or posting dates, then you can do so here; otherwise, this step is unnecessary.

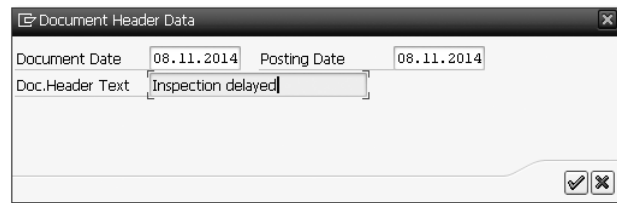


Figure 3.13 Usage Decision Header Data

You can also change the batch status in Figure 3.12 to restricted or unrestricted, as deemed necessary. Otherwise, you can separately change the status of a batch using Transaction MSC2N (Change Batch).

3.1.5 Defect Recording

During results recording, the quality inspector finds quite a few defects, and the need to record these defects becomes evident for subsequent action by either returning the defective material to the vendor or requesting replacement (or rework, in the case of in-house-produced material). As already explained, you perform defects recording during results recording and usage decision. Once a usage decision of an inspection lot is taken, you can no longer record defects.

To record defects, use Transaction QF11 or use the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • DEFECTS • RECORD FOR INSPECTION LOT. On the initial screen that appears, enter inspection lot 3194 and enter report type 00000002. Whenever a user enters the defects of an inspection lot, it's mandatory for the user to choose the relevant *report type*. A report type denotes that

when the user runs the corresponding defects reports in the system, the relevant information is available for display and analysis purposes. Several standard defect report types are available, or you can configure new report types to cater to any specific business processes (see more about reporting in Chapter 18). Some of the options available for report types are in several combinations of defect types, number of defects, defect locations, causes of defect, and activities for the QM user to perform on recording the defects.

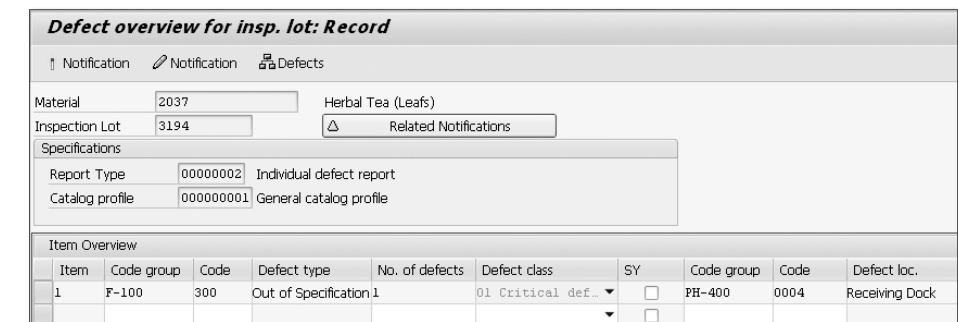
Press **Enter**, and the system offers three options through a pop-up to record the defect data at the inspection-lot level, operation level, or characteristic (MIC) level. The defects recording at the inspection lot stipulates that the quality inspector found the defects in the entire inspection lot. At the operation level, it's the specific operation or stage/phase in which the quality inspector found the defects. At the characteristics level, it's the particular master inspection characteristic (MIC) for which the quality inspector intends to record defects.

Tips & Tricks

You can also use Transaction QF21 for operation defect recording and Transaction QF31 for characteristics defect recording.

[+]

Select the INSPECTION LOT radio button and then choose CONTINUE, and Figure 3.14 appears.



Item	Code group	Code	Defect type	No. of defects	Defect class	SY	Code group	Code	Defect loc.
1	F-100	300	Out of Specification 1		01 Critical def...	<input type="checkbox"/>	PH-400	0004	Receiving Dock


Figure 3.14 Defects Recording

Place the cursor in the CODE GROUP column and press **F4**. A code group plus codes represent the logical grouping of different defect types available in a catalog. A few examples of different defect code groups and types of different defects

in pumps are combined together in one code group, and all types of electrical defects are combined in one defect code group. All vendor-related defects, which the company normally observes or handles, are grouped together in one defect code group, and all the production-related defects on one machine or group of machines are combined into one defect code group.

The quality inspector can enter the number of defects against each defect code. However, these defective quantities are not directly related to or integrated with the inspection lot quantity or goods receipt quantity.

For this example, enter code group F-100 and the code 300 (DEFECT TYPE: OUT OF SPECIFICATION). When the user selects a defect code, the system automatically assigns a defect class to it to categorize the nature of the defect. A defect class denotes the severity of the defect. Some of the defect classes are *critical* defect, *major* defect, and *minor* defect. These defect classes are available as standard options in the system, but you can also configure and make available new defect classes to meet your business needs.

The user can also enter a short description for each defect code in the corresponding DESCRIPTION column, as well as a long text .

3.1.6 Inspection Report

The inspection report displays the inspection results and comments of every characteristic on the screen as a print preview or in the form of a printout. This means it can also be used to provide an overview of the inspection carried out, or it can be referred to as a basis for the usage decision. It can also serve as an attachment to a quality notification to the vendor or to internal departments to describe in detail the deviations of individual characteristics according to type and scope, in the case of defects.

To display the inspection report, use Transaction QGA3 or follow the menu path QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION RESULT • PRINT. The system displays the RESULTS PRINT selection screen. If you know the inspection lot number, you can enter it directly. Otherwise, the selection allows you to set limits through known parameters such as material number, vendor, and date, among others. Figure 3.15 shows an example of a print preview (selective) of an inspection report for inspection lot 3193 for material 2037.

Print Preview of LP01 Page 00003 of 00004

Inspection report

Inspection lot	000000003193		
Material	2037	Herbal Tea (Leafs)	
Batch	0000000435		
Vendor	1000	C.E.B. BERLIN	
Status	Usage	decision	made/Defects Found

Unit to be inspected: 0010
 Attribute: Result is valid (default)
 Recorded measured values: 98
 Valuation: Accepted

Characteristic 0020 Classed Char. and Defect Record

Status	Processing is completed		
To be inspected	10 * 1.00 KG	Inspected	10 Nonconforming 4
Attribute	Result is valid (default)		

Defect overview for characteristic

Code group	CodeNo.	of defects	Short text/Note
LEHUQ-01	0002	1	Out of Specification

Details

Mean of valid measured values	98.7
Standard deviation of valid measured values	9.8
MaxVal of valid measured vals.	117
MinVal of valid measured vals.	83

Valuation: Rejected

Figure 3.15 Inspection Report

3.2 Optimization Features of Inspection Planning and Quality Inspection

Just as we covered the standard QM business processes in the specific sequence in which they occur, this section covers optimization and other productivity enhancement options available in the following areas:

- ▶ Master data
- ▶ Inspection lot
- ▶ Results recording
- ▶ Usage decision

3.2.1 Master Data

Let's begin with master data. We started with the fundamentals in Chapter 2; this information represents specific optimization.

Replace Inspection Characteristic or Inspection Method

To replace a characteristic or MIC, or an inspection plan, use Transaction QS27 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC • REPLACE. Figure 3.16 ❶ shows the initial screen where you enter the original or existing characteristic number and its plant. In the REPLACEMENT MASTER INSPECTION CHARACTERISTIC WITH INSPECTION METHOD area, you can enter only the new characteristic, the new characteristic and its associated inspection method, or either of the two. Choose USAGE, and ❷ appears. In ❷, you can choose to replace some or all of the characteristics listed, and do so online or as a batch input (background job).

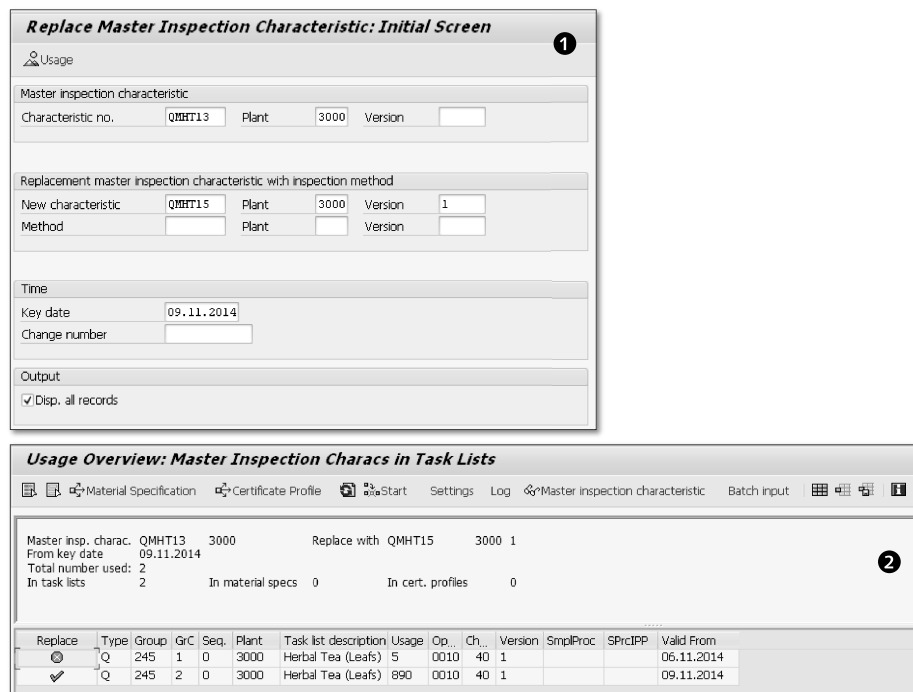


Figure 3.16 MIC and Inspection Method Replacement



Warning

You need to engage an ABAP resource to activate user exit QPAA0004 in order to be able to use this replace characteristic functionality. However, implementing this user exit in isolation leads to other problems, such as not being able to incorporate inspection

characteristics in an inspection plan. We suggest that while implementing this user exit, you also implement dependent and subsequent user exists or function modules that your ABAP resource should be able to manage.

Where-Used List

At any time, you can leverage the where-used list to find out the inspection plan in which a specific characteristic is used. For this, use Transaction QS26 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC • WHERE-USED LIST.

List Inspection Characteristic

You can view a complete list of inspection characteristics and all their settings in the form of a list or report. To view this characteristic list, use Transaction QS28 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC • LIST.

Delete Tasklist (Inspection Plan)

To delete obsolete or wrongly created inspection plans, use Transaction CA98. Be sure to choose TASK LIST TYPE Q, which is specific to inspection plan.

Note

Although we cover only limited options to change, replace, delete, or report options of quality planning master data, we suggest that you explore these options available for every QM master data. The relevant options are available in the same menu paths that you use to create or change any QM master data, such as inspection plan, inspection method, work center, class characteristic, or inspection characteristic.



3.2.2 Inspection Lot

Let's now cover the inspection lot and its various business scenarios.

Correct Errors

To correct quantity-related errors of an inspection lot, use Transaction QAC1 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION •

INSPECTION LOT • PROCESSING • LOT QUANTITY • CORRECT ERRORS. You can use this option to correct or change both stock-based and non-stock-based inspection lots. The stock-based quantity update is especially helpful when the system automatically creates an inspection lot on receipt of goods for a purchase or process order and accordingly suggests an inspection lot quantity, which you can change, if needed.

Stock Transfer

Let's say that you receive a quality stock of material, and on its inspection you conclude that you need to keep it in a separate storage location or transfer it to a different plant. In this case, you use the stock transfer option. When you use this option, the stock that's transferred to a different plant or storage location still remains in quality inspection until you record results, take usage decision, and perform stock posting.

To transfer stock for plant-to-plant or store-to-store of an inspection lot, use Transaction QAC2 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT • PROCESSING • LOT QUANTITY • STOCK TRANSFER.

On the initial screen that appears, enter the inspection lot whose stock you want to transfer-post and press **Enter**, and Figure 3.17 appears. The TRANSFER POSTING INSP. LOT STOCK area shows the current location of the quality stock.

Figure 3.17 Stock Transfer of Quality Stock

You can enter a different plant for stock for plant-to-plant stock transfer, or simply keep the same plant (as in this example) and change the storage location of inspection stock from 0001 to 0002 (see the St.Loc.ILotStock field) in the STOCK TRANSFER BASED ON area.

Cancel Sample Calculation

On inspection lot creation (manual or automatic), the system assigns an inspection plan or material specification and calculates a sample size. If you realize that you or the system incorporated an incorrect or obsolete inspection plan and therefore calculated a wrong sample size, you can cancel the sample calculation. Cancelling the sample calculation also enables you to reassign a new or different inspection plan and accordingly recalculate the sample size. In other words, you have to cancel the sample calculation before the system allows you to reassign an inspection plan and then recalculate the sample size.

To cancel sample calculation, use Transaction QAC3 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT • PROCESSING • CANCEL SAMPLE CALCULATION. On the initial screen that appears, enter the inspection lot whose sample you want to cancel, press **Enter**, and then simply save.

Tips & Tricks

To cancel, you can also use Transaction QA02 (Change Inspection Lot) and on the initial screen, enter the inspection lot number and click the CANCEL SAMPLE button.

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Inspection Lots with Outstanding Quantities

It's of interest to the quality inspector to have a complete list of inspection lots whose usage decision may or may not be taken, but whose stock posting is still pending or outstanding. To access inspection lots with outstanding quantities and also be able take usage decisions on the same screen, use Transaction QVM2 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT COMPLETION • INSPECTION LOT WITH STOCK. In Figure 3.18, notice that the system status of inspection lot 3499 stipulates UD already taken, but its stock posting remains.

Tips & Tricks

Transaction QVM1 is Inspection Lots with Inspection Completion, whereas Transaction QVM3 is for Inspection Lots without Usage Decision.

[+]

Inspection Lots with Outstanding Quantities										
Monitor	A	Insp. Lot	Material	Plant	BUn	LTChar	STChar	Start date	End Date	System Status
OOO		3491	2892	3000	KG	0	2	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3492	2892	3000	KG	0	2	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3493	2892	3000	KG	0	1	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3494	2892	3000	KG	0	1	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3495	2892	3000	KG	0	1	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3496	2892	3000	KG	0	1	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3497	2892	3000	KG	0	1	09.10.2014	09.10.2014	INSP RREC SPRQ PRSI
OOO		3499	2892	3000	KG	0	0	09.10.2014	09.10.2014	UD ICCO SPST PRSI ST

Figure 3.18 Outstanding Inspection Quantities

Cancel Inspection Lot

If you or the system has created an inspection lot that you no longer want to inspect or use, you'll want to cancel it. This option is helpful when you have mistakenly activated an inspection type against which the system created an inspection lot. To cancel, first go to change inspection lot (Transaction QA02), and then navigate to INSPECTION LOT • FUNCTIONS • CANCEL LOT. The system sets the status of the inspection lot to LTCA. Similarly, if you want to reset an inspection lot cancellation, navigate to INSPECTION LOT • FUNCTIONS • RESET CANCELLATION.

Block Inspection Lot

If you want to temporarily block an inspection lot so that you can perform additional tests, or to prevent the quality inspector from making its usage decision or stock posting, you can block the inspection lot. To do so, first go to change inspection lot (Transaction QA02), and then navigate to INSPECTION LOT • FUNCTIONS • BLOCK LOT. The system sets the status of the inspection lot to LKD. Similarly, if you want to unblock an inspection lot, navigate to INSPECTION LOT • FUNCTIONS • UNBLOCK LOT.

3.2.3 Results Recording

Let's now cover results recording and its various business scenarios.

Copy Inspection Results of Inspection Lot

The SAP ERP system provides an option to copy inspection results of an inspection lot into subsequent inspection lots, based on the configuration and master

data settings. The configuration settings are inspection type specific for a particular plant in which available copy controls are at the inspection lot creation level and at the results-recording level.

You can copy the inspection results during the following:

- ▶ Inspection lot creation
- ▶ Results recording

While this functionality is more commonly used in recurring inspection (inspection type 09), you can also use this functionality for any other inspection type-plant combination, as this example shows.

Configuration Settings

To set up necessary configuration settings for copying inspection results, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • MAKE SETTINGS FOR COPY OF INSPECTION RESULTS. You need to review Figure 3.19 ① and ② together because these are part of the same screen of copy inspection results settings. This example shows configuration settings of inspection type 89 (manual inspection) for plant 3000, which you see in Figure 3.19.

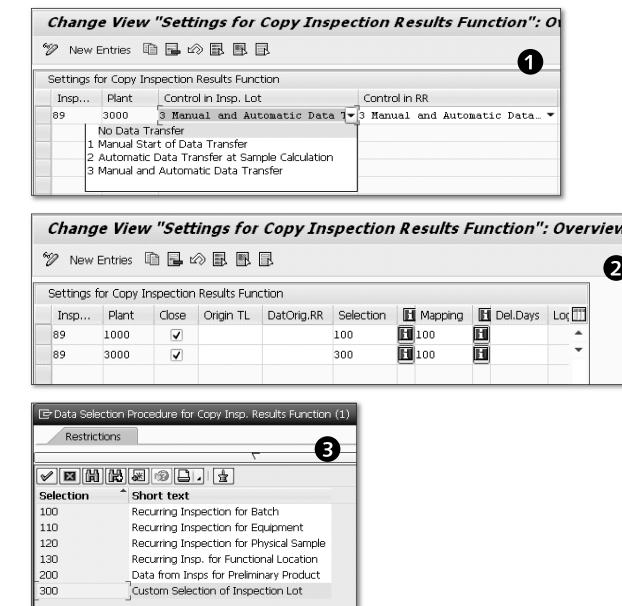


Figure 3.19 Configuration Settings for Copy Inspection Results

Table 3.3 explains the fields' settings of Figure 3.19.

Field Column	Details
INSPECTION TYPE	Inspection type to which copy inspection results is applicable.
PLANT	Plant of the inspection type for which the copy inspection results apply.
CONTROL IN INSP. LOT (INSPECTION LOT)	Option to control the mode of data transfer or data copy. The available options are as follows: <ul style="list-style-type: none"> ▶ No data transfer at the inspection lot–creation level ▶ Automatic data transfer on sample calculation ▶ Manual and automatic data transfer In the case of manual data transfer, the system prompts you to enter the inspection lot number of the data that you want to copy or transfer. See Figure 3.19 ❶. <p>Note: The source and target characteristics (MICs) must both be available and consistent to ensure successful data transfer.</p>
CONTROL IN RR (RESULTS RECORDING)	Option to control the mode of data transfer or data copy. The available options are the same that are available for inspection lot creation.
CLOSE	Checkbox, if selected, closes the master inspection characteristics (MICs) on successful data transfer.
DATA ORIGIN: TL (TASK LIST)	The option to assign the task list's origin (or source) for data transfer. See Figure 3.19 ❷. The available options are as follows: <ul style="list-style-type: none"> ▶ Quality certificate ▶ Previous inspection lot ▶ Batch values ▶ Previous inspection point ▶ Copied from the subsystem using QM IDI ▶ From mobile data recording ▶ Quality certificate transmission
DATA ORIGIN: RR (RESULTS RECORDING)	The option to assign data origin (or source) for data transfer for results recording. Once again, the available options are the same as those available for the task list.

Table 3.3 Copy Inspection Results

Field Column	Details
SELECTION	An option to define a procedure to select suitable results for the target characteristics. The options available are as follows: <ul style="list-style-type: none"> ▶ Recurring inspection for batch ▶ Recurring inspection for equipment ▶ Recurring inspection for physical sample ▶ Recurring inspection for functional location ▶ Data from inspections for preliminary product ▶ Custom selection of inspection lot <p>Note: If there's a unique copy procedure, then the BAdI QEC_SELECTION is available.</p>
MAPPING	An option to define the mapping of suitable results to the target MICs. The available options are as follows: <ul style="list-style-type: none"> ▶ Usage of task list key ▶ Master inspection characteristic and method ▶ Characteristic ID <p>Note: For any unique mapping procedure, the BAdI QEC_MAPPING is available.</p>
DEL. DAYS (DELETION DAYS)	Number of days after transfer log generation before the system deletes the transfer log.
LOG	When this checkbox is selected, the system displays the transfer log immediately of successful or unsuccessful data transfer.

Table 3.3 Copy Inspection Results (Cont.)

While you can choose the relevant configuration settings that best meet your business needs, this example shows the exact settings that you see in Figure 3.19 ❶ and ❷.

Master Data Setup

After configuration settings are in place, you need to make a single master data setting for the MICs in the inspection plan of the material–plant combination to define the data origin to copy inspection results from.

Figure 3.20 is the inspection plan (Transaction QP02) for the material 2887 and plant 3000. For CHARACTERISTIC 10 OF OPER. (operation) 0010, choose ORIGIN RESULTS DATA as 02 (Previous inspection lot./Act). This setting enables the system

to look for the last (previous) inspection lot to copy inspection results to the just-created inspection lot. As with the inspection lot, you can choose to copy batch results of an inspection lot to the just-created inspection lot.

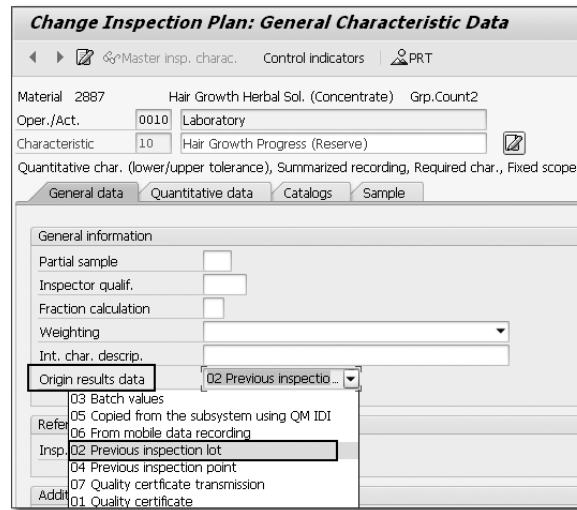


Figure 3.20 Origin of Results Data

Let's now delve into the business process of this process.

Business Process of Copy Inspection Results

Figure 3.21 shows an already-created (previously created) inspection lot 890000000777, with the result of characteristic as 100, which you use as a reference to copy it to the next (or another) inspection lot.

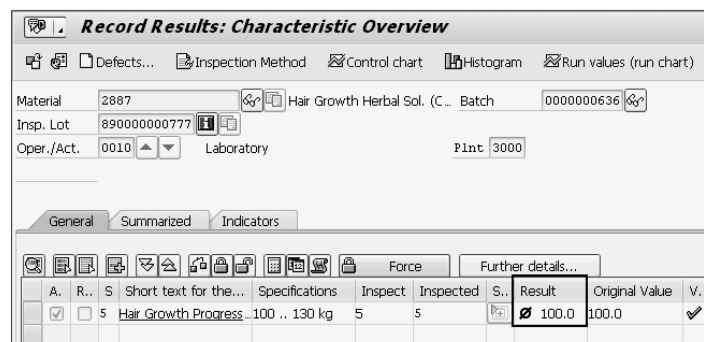


Figure 3.21 Original Inspection Lot

Create a new inspection lot using Transaction QA01 for material 2887, plant 3000, and inspection type 89. The system creates inspection lot number 890000000778.

Access Figure 3.22, which is the results recording screen (Transaction QE01) of the inspection lot number 890000000778. Since your configuration settings stipulate that you use the manual option to copy inspection results, choose EDIT • COPY INSPECTION RESULTS, as shown in Figure 3.22 ❶. When you do this, the system brings up the inspection lot selection pop-up that you see in ❷. Enter the previous (or other) inspection lot number 890000000777 and choose CONTINUE. The system brings up operation(s) within the inspection lot 890000000777 for you to choose. In this case, it's OPER. (operation) 0010 that you select in ❸ and choose CONTINUE. This leads you to Figure 3.23.

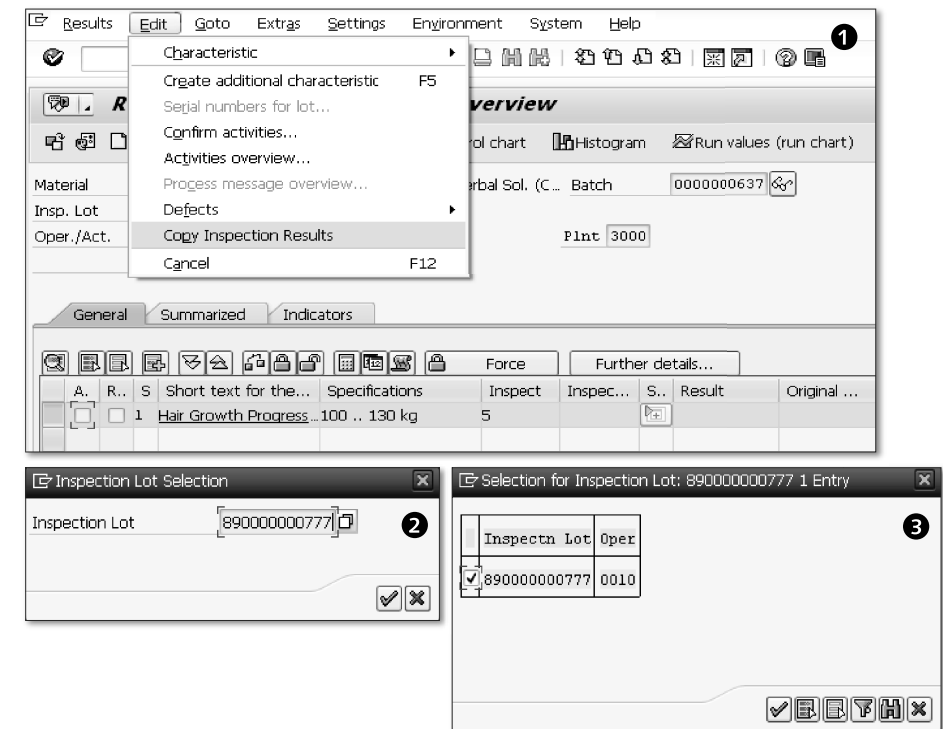


Figure 3.22 Copy Options for Results Recording

Figure 3.23 ❶ shows the DISPLAY LOGS of a successful (or unsuccessful) copy of inspection results from one inspection lot to another. Here, the system also shows the copied-to inspection lot 890000000778 in the EXTERNAL ID column.

Figure 3.23 ❷ shows that inspection lot 890000000778 is the copied results, and the ORIGIN DATA SOURCE is 02 (Previous inspection lot), which you set up in the characteristic of the inspection plan.

If there is any specific or unique business need, you can still make changes to the copied-to results by selecting the relevant characteristic and selecting the UNLOCK icon.

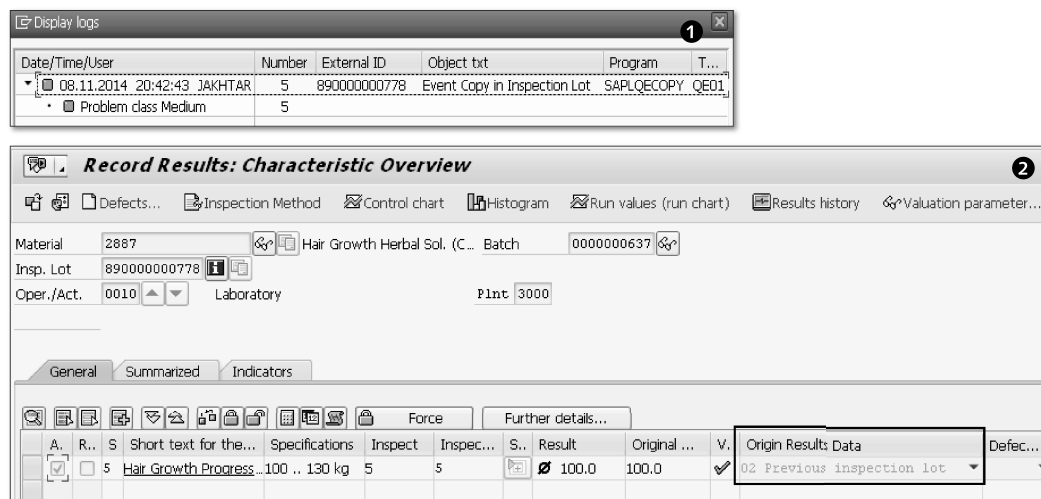


Figure 3.23 Inspection Lot with Copied Results

Copy Inspection Results into Batch Classification

Now that you're familiar with how to manually or automatically copy inspection results of one inspection lot to another, you can also copy inspection results into batch classification. In this business process, the results of an inspection lot are directly transferred as characteristic values of a batch.

The following subsections explain the steps involved.

Configuration Setting

You need to make the following two settings:

1. The menu path where you need to do this setting is SPRO • SAP REFERENCE IMG • QM • BASIC SETTINGS • MAINTAIN SETTINGS AT PLANT LEVEL • INSPECTION LOT COMPLETION • TRANSFER INSPECTION RESULTS TO BATCH. You just need to execute this program, and the system automatically activates the necessary settings.
2. Ensure that in the plant settings, the checkbox BATCH VALUATION WITHOUT MATERIAL SPEC is selected. The menu path where you need to ensure this setting is SPRO • SAP REFERENCE IMG • QM • BASIC SETTINGS • MAINTAIN SETTINGS AT PLANT LEVEL • INSPECTION LOT COMPLETION. You may also refer to Figure 3.54 ❶ for this configuration setting.

Master Data Settings

Following is the master data that you need to maintain:

1. Create class characteristic (Transaction CT04).
2. Create batch class (Transaction CL01) of class type 023 (batch class).
3. Assign the above-created classed characteristic to the batch class at the time of batch class creation (Transaction CL01).
4. Assign a batch class to the material master in the classification view (Transaction MM01). Remember to use class type 023, which is specific to batch class.
5. Assign the inspection type in the material master (Transaction MM01). Choose either inspection plan or material specification.
6. Create inspection characteristic (MIC) with reference to the above-created class characteristic (Transaction QS21).
7. Create an inspection plan with the above MIC (Transaction QP01) or create material specification (Transaction QS61).

Note

We suggest that you also read Chapter 13 on classification, which explains how to create class characteristics. Further, the section on Active Ingredient Management in Chapter 8 covers most of the master data settings that you need to run this business process. All examples in this book are for quantitative characteristics. But if you want to copy qualitative characteristic of an inspection lot to a batch classification, then while

«

creating the class characteristic (Transaction CT04), go to the VALUES tab, choose OTHER VALUE CHECK, and select the radio button CATALOG CHAR. Here, you can enter the selected set and the associated plant.

Business Processes in Copy Inspection Results into Batch Classification

The business processes are as follows:

1. Create a manual inspection lot of lot origin 89 (Transaction QA01). Also, create a new batch number during inspection lot creation.
2. Record results (Transaction QE01).
3. Take usage decision (Transaction QA11). When you save the usage decision, a message appears at the bottom of the screen to inform you about transfer of inspection results to batch classification.
4. Display batch of the material (Transaction MSC3N). In the CLASSIFICATION tab, you'll find the inspection results transferred as batch characteristics.

3.2.4 Usage Decision

Let's now cover usage decision and its various business scenarios.

Collective Usage Decision

If you've inspected several inspection lots and found the results acceptable, then you can release the material placed in quality inspection to the next processing step. It makes sense to assign an "accepted" usage design (UD) code to all the accepted inspection lots at once, instead of one at a time, saving you time and effort.

To perform a collective UD, use Transaction QA16 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT COMPLETION • COLLECTIVE USAGE DECISION (GENERAL) (see Figure 3.24).

Enter inspection type 03 (in-process inspection) so that the system displays only in-process inspection lots. For the USAGE DECISION area, enter the UD selected set 03, UD plant 0001, UD code group 03, and UD code A (for "accepted").

Figure 3.24 Collective Usage Decision: Initial Screen

Choose EXECUTE to go to Figure 3.25. ❶ consists of a list of quality inspection lots for which you can perform a collective UD. You have three options in performing collective UD:

- ▶ UD (BACKGROUND)

The system performs all actions in the background, and finally, a message appears at the bottom of the screen to inform you when it saves the UD code for the inspection lot.
- ▶ UD (FOREGROUND)

You have to keep pressing to validate each action that the system undertakes. For example, you press when the system selects the inspection lot, incorporates the UD code to the inspection lot, and prompts you to save the changes made.
- ▶ MANUAL UD

You select an inspection lot and manually assign the UD code.

For this example, choose inspection lot 30000002000 and then choose UD (BACKGROUND). Once you successfully incorporate the UD code, the system displays the message at the bottom of the screen that says USAGE DECISION FOR LOT 30000002000 IS SAVED.

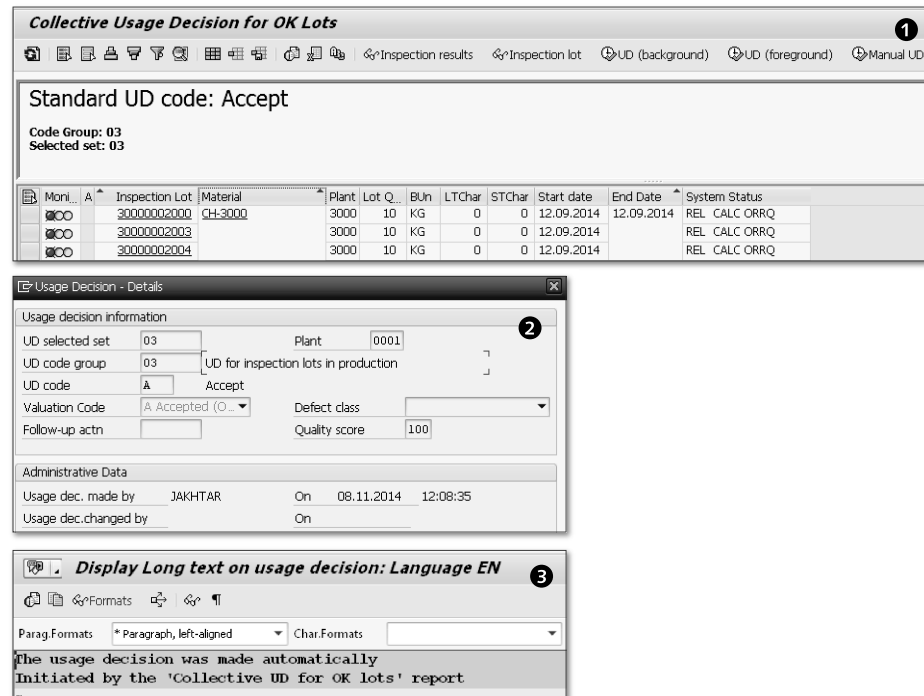


Figure 3.25 Collective Usage Decision and Log

[+] Tips & Tricks

You can select multiple inspection lots in Figure 3.25 and perform a collective UD function. To do so, choose SELECT ALL or choose selected inspection lots and perform a collective UD function.

Let's check out whether the system automatically and correctly assigns the UD code A to the inspection lot 30000002000. To view an inspection lot, use Transaction QA03 and enter the inspection lot number, which in this example is 30000002000. Figure 3.25 ② shows the display view of the inspection lot

30000002000 with the UD code A automatically assigned, whereas ③ shows the long text that the system automatically creates to maintain the log of automatic UD.

Automatic Usage Decision

Consider a business scenario in which your reliable, long-time vendor routinely supplies material that meets your company's specification. To bring efficiency to the quality inspection process, as well as reward the vendor for reliably supplying quality product, you can use automatic UD functionality. Similarly, after a major plant upgrade, the quality of the in-house-produced goods has greatly improved. If so, you repeatedly end up recording the same acceptable results of the inspected material.

If the vendor regularly supplies satisfactory goods and all inspection lots are accepted, then the company starts skipping the results recording step in QM until a problem in any of the inspection lot arises. In the SAP ERP system, these inspection lots have the SKIP status. To optimize the entire business process in QM, you can perform automatic usage decision of all the inspection lots with the SKIP status.

Configuration Setting

In the plant settings, maintain the time lapse for automatic UD. A time lapse is the time that the system must wait before it proceeds with automatic UD business process. Refer to Figure 3.54 ① to see where you need to maintain the requisite configuration settings.

Master Data Setting


You also need to ensure that the checkbox AUTOMATIC UD is selected in the INSPECTION SETUP of the inspection type of the material-plant combination for which you want to perform automatic UD.

Business Process: Automatic UD

For automatic UD business processes, you need to ensure that the results recording step of the inspection lots is complete and all characteristics are valued and closed.

To perform automatic UD, use Transaction QA10 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT

COMPLETION • AUTOMATIC USAGE DECISION (GENERAL) • TRIGGER MANUALLY. In Figure 3.26, enter inspection type 04 and plant 3000 and select both the checkboxes AUTO. UD FOR SKIPPED LOTS and AUTO. UD FOR COMPLETED LOTS.

For the USAGE DECISION area, enter the UD select set as 01, the UD plant 0005, UD code group 01, and finally UD code as A. These settings denote that the system assigns a UD code A (for “accepted”) from the UD selected set 05, available in the plant 3000 and in the code group 01. Choose EXECUTE, and ❷ appears and is the log of automatic UD. Choose DETAIL , which leads to ❸ and shows that the system successfully assigns the UD code A to inspection lot 040000000914.

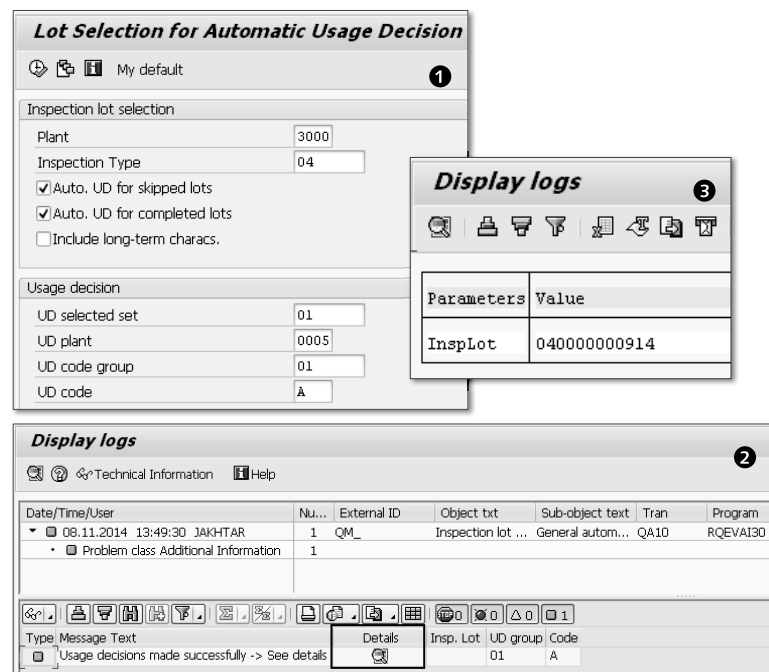


Figure 3.26 Automatic Usage Decision



Note

While this example covers manual steps to processing automatic UD, you can also have the system automatically perform this task for you as a job planning (batch job). To do this, use Transaction QA17 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT COMPLETION • AUTOMATIC USAGE DECISION (GENERAL) • JOB PLANNING.

On the initial screen that appears, create a variant and save it. In the second step of the same initial screen, schedule how frequently you'd like the system to perform automatic UD. You can view the job planning overview with Transaction QA18 and check the complete log with Transaction QA10L.

You can also manually or automatically perform automatic UD for production, process, or plant maintenance orders. However, they must have completed/confirmed status before automatic UD can take place.

To perform automatic UD, use Transaction QA40 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT COMPLETION • AUTOMATIC USAGE DECISION (ORDER) • TRIGGER MANUALLY. On the initial screen that appears, enter the relevant plant and then choose whether the order must be completed, only technically completed, or just confirmed for the system to perform automatic UD. You then need to assign a UD code to the inspection lots for orders.

To enable the system to automatically perform UD for orders as job planning (batch job), use Transaction QA41 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • WORKLIST • INSPECTION LOT COMPLETION • AUTOMATIC USAGE DECISION (ORDERS) • JOB PLANNING. On the initial screen that appears, create a variant and save it. In the second step of the same initial screen, schedule how frequently you'd like the system to perform automatic UD. You can view the job planning overview with Transaction QA42 and check the complete log with Transaction QA40L.

Reset Usage Decision

Sometimes, an incorrect usage decision (UD) is entered for an inspection lot, due to either an incorrect manual data entry or an error made during collective or mass UD, to quality inspection lots. Because an incorrect UD code leads to incorrect calculation of quality scores, it's imperative that the user correct this anomaly as soon as possible.

To reset or change the UD code of an inspection lot, use Transaction QA12 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT • USAGE DECISION • CHANGE WITH HISTORY. Figure 3.27 shows an inspection lot 890000000750 whose UD you can change or reset: if you choose RESET UD, the existing UD code disappears. You can enter the new UD code at

that time or do so later. When you reset the UD, the system assigns the status UDRE to the inspection lot. Upon resetting the UD code, you're also able to change the results of an inspection lot, if there's any such business need. Changes to the previously recorded inspection results are not possible if UD for an inspection lot is already taken.

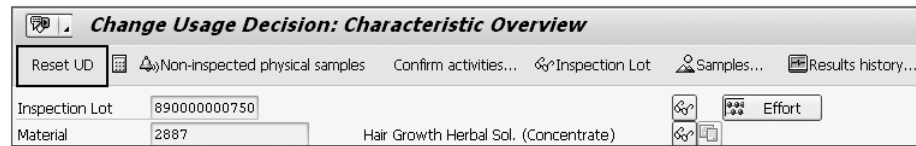


Figure 3.27 Reset UD

[+] Tips & Tricks

If you can't see the RESET UD option in your system, you'll need to engage an ABAP resource who will implement and activate user exit QEVA0008.

Reverse Stock Posting

If you have an inspection lot that is stock based, have your ABAP resource implement user exit QEVA0008 to complete the reversal process. A stock-based inspection lot reversal means that you're resetting the UD code and placing the quality-cleared inspection stock (unrestricted stock) back into quality inspection. Such business scenarios are applicable in goods receipt against a purchase order or a goods receipt against a production or process order, in which you not only assign a UD code to the inspection lot, but also simultaneously perform stock posting. The user exit uses movement type 322 and transfers the quality-cleared stock back into quality inspection stock. When implementing this user exit, you need to have a custom-designed transaction to achieve the reversal objective. Your ABAP resource will be able to manage this activity.

Reverse Stock Posting (Workaround)

You can use Transaction MB01 to reverse the material document even after usage decision for inspection lot is taken. The specific movement type is 101, against which the system creates an inspection lot, and it is for goods receipt for procurement. The reversal of movement type 101 is 102.

Follow these steps:

1. Enter the POSTING DATE as the same as the UD date.
2. Enter 102 (Goods receipt against purchase order—reversal) in the MOVEMENT TYPE field.
3. Enter relevant plant, storage location, vendor, and material.
4. Enter the purchase order (or scheduling agreement) number.
5. The system displays the purchase order number that you choose, and then you choose ADOPT SELECTED.
6. The system displays the material together with its quantity. Enter the quantity that you want to reverse and enter the storage location.
7. In the STOCKTYPE field, remove the X.
8. Save your entries, and the system creates a material document number, which is basically a reversal material document.

At the same time, the system brings the material's stock quantity back into quality inspection stock, and you can either put it into blocked stock or return it to the vendor using the UD business process (Transaction QA11 or QA12).

3.2.5 Engineering Workbench

The *Engineering Workbench* tool allows you to make mass changes to inspection plans and task lists with an integrated and intuitive interface. You can edit, exchange, change, and delete the operations of a task list, just as you can with the characteristics. Also integrated here are the maintenance functions for the material routing assignment and for the allocation of PRTs to support quality management.

The *work area* settings make it possible for you to adapt your inspections to the special planning tasks in the QM area. A work area consists of a core and a working environment. The core is the object type, based on which you make your selections. The object types that you want to display and edit make up the working environment. The content of the work area is defined in configuration.

To access the QM Engineering Workbench, use Transaction CWBQM or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • INSPECTION PLAN • WORKBENCH. Select the standard work area

Q_TSK_00000000010 and press **[Enter]**. You come across EWB: SELECTION CRITERIA FOR HEADERS, wherein you enter the relevant information in the SELECTION CRITERIA area and choose LOAD TASK LISTS (see Figure 3.28).

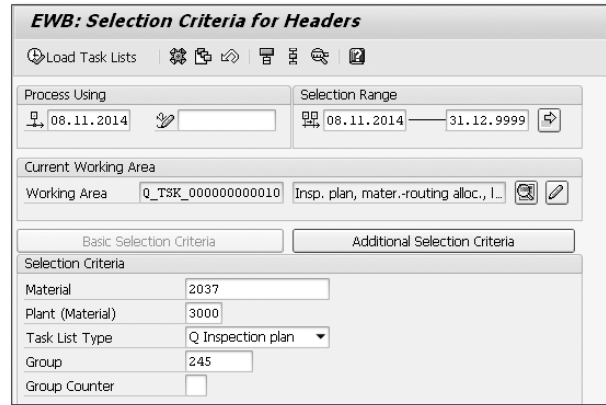


Figure 3.28 Engineering Workbench

[+] Tips & Tricks

If you choose ADDITIONAL SELECTION CRITERIA in Figure 3.28, you get far more parameter selection options to choose from.

In Figure 3.29, choose TASK LISTS • INSPECTION CHARACTERISTICS. A list opens containing all of the inspection characteristics of the various task-list groups. You can change the displayed characteristics any way you like.

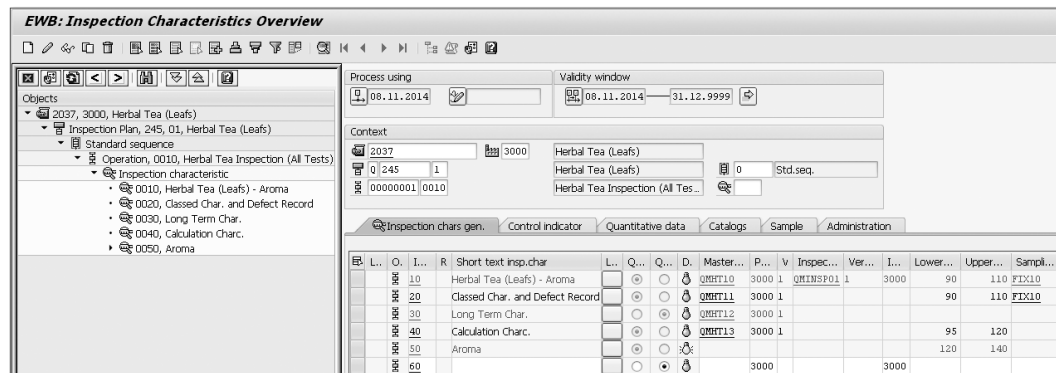


Figure 3.29 Control Indicators of Tasklist

Tips & Tricks

Choose **[F3]** to see the complete hirarchy of an inspection plan on the left-hand side of the screen.

[+]

The left-hand side of Figure 3.29 is the hierarchy of the inspection plan's group 245 of material 2037, whereas the lower half of the screen shows the CHARACTERISTICS OVERVIEW. You have just about all the tools and options you need to add, amend, or replace any object of the inspection plan.

In Figure 3.30 ❶, choose all five characteristics and then choose the CONTROL INDICATOR tab, which brings up ❷. In ❷, you can change the settings of any of the five characteristics, or even delete characteristics that you no longer use in the inspection plan.

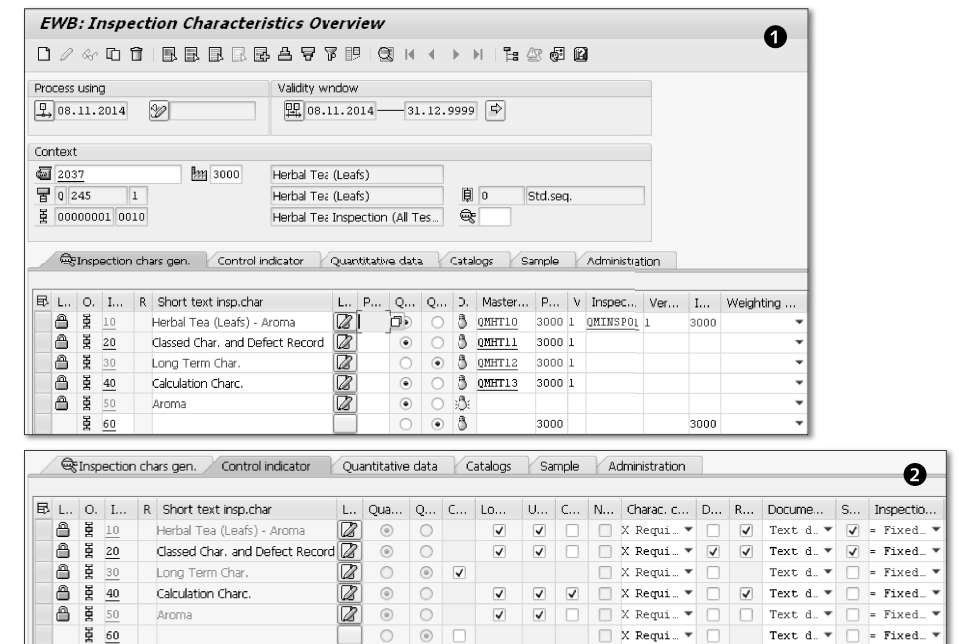


Figure 3.30 Characteristics Overview

After you choose all five characteristics in Figure 3.30 ❷, you'll see the MASS CHANGE INSPECTION CHARACTERISTICS screen. Choose the INSPECTION METHOD column and then navigate from the menu to EXTRAS • MASS CHANGE. Here, you can

change or replace the inspection method of one or more characteristics. Pay special attention to the CHOOSE FIELDS icon, which allows you to add more fields for the mass change function.

3.3 Multiple Specifications

Multiple specifications attend to one of the critical requirements of the process industry: to store specifications depending on freely selectable objects. Multiple specifications use the same fundamentals and basics that were previously covered in Chapter 2 in the material-routing assignment in the context of specific characteristic specifications. There, you can use different limits for various vendors or customers in the same inspection plan. Multiple specifications extend the scope of criteria that depend on the material, vendors, and customers. With multiple specifications, for example, customers often ask question such as, "Does the tolerance limit of the active substance content of a vendor-delivered substance meet the approval in a selected country (marketing authorization of pharmaceuticals for the countries)?"

The following example addresses the same question about the usage of a substance for a specific country and covers not just the configuration basics or the master data that you need to set up, but also the business processes of multiple specifications.

3.3.1 Configuration Settings

You need to ensure that the following configuration settings are in place:

1. Activate the multiple specifications in Customizing. To do so, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • BASIC SETTINGS • MAINTAIN SETTINGS AT CLIENT LEVEL INSPECTION SPECIFICATION.
2. In the screen that appears, ensure that the MULTIPLE SPECIFICATIONS checkbox is selected. You may also refer to Figure 3.51 for this setting.

Define Object Types for Multiple Specifications

In this step, you define the object type that you want to use for multiple specifications. To do so, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY

MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL • MULTIPLE SPECIFICATIONS • DEFINE OBJECT TYPES FOR MULTIPLE SPECIFICATIONS (see Figure 3.31).

Warning

Don't change the system-defined object types. But to meet your company's business needs, you can create new object types.



For this example, use OBJECT TYPE 01 for COUNTRY. Notice that the system uses CLASS CHARACTERISTICS for acceptable (OK) and unacceptable (NOT OK) characteristics. You can use Transaction CT04 to display the structure of these class characteristics.

Maintenance View for MS Object Types				
ObjectType	Short text	Class Char. (OK)	Class Char. (Not OK)	Field Name
01	Country	LOBM_COUNTRY_OK	LOBM_COUNTRY_NOK	COUNTRY
02	Customer	LOBM_CUSTOMER_OK	LOBM_CUSTOMER_NOK	KUNR
03	Pharmacopela			MS_OBJECT

Figure 3.31 Multiple Specifications

Define Objects for Multiple Specifications

With the object type already in place, the next step is to define individual objects for the specific object type. To do so, use the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL • MULTIPLE SPECIFICATIONS • DEFINE OBJECTS FOR MULTIPLE SPECIFICATIONS.

In Figure 3.32, you create six new countries, which are basically the object (MULT. SPECS), and assign OBJECT TYPE 01 (for country) and the relevant country key in the CTR column.

In this configuration step, you must define all the possible country keys that you'll eventually use in your business processes of multiple specifications. While you defined six objects here, later you'll see that you'll use only four objects for a specific material using material specification.

Change View "Maintenance View for Multiple Specification Objects": Overview

New Entries

Maintenance View for Multiple Specification Objects

Object (Mult. Specs)	Description Obj. Key	ObjectType	Ctr
DENMARK		01	DK
GREATBRITIAN		01	GB
INDIA		01	IN
PAKISTAN		01	PK
SOUTHAFRICA		01	SA
USA		01	US

Figure 3.32 Object Type in Multiple Specifications

Define Default Values for Inspection Type

In this configuration step, you select the MULTIPLE SPECIFICATIONS checkbox as a default value for the specific inspection type. To do so, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT CREATION • DEFINE DEFAULT VALUES FOR INSPECTION TYPE.

For this example, use inspection type 01. Refer to Figure 3.43 on how to maintain the default values of an inspection lot.

3.3.2 Master Data Settings for Multiple Specifications

The following are the master data settings for multiple specifications that you need to ensure exist in the system:

- ▶ Access Figure 3.33 using Transaction MM01; for material 2922, plant 3000, and inspection type 01, ensure that the MULTIPLE SPECS checkbox is selected.
- ▶ Create the inspection plan (Transaction QP01) and assign the relevant characteristics (MICs). For this example, the system creates an inspection plan with group 259 and the group counter 1.
- ▶ Select the MULTIPLE SPECS checkbox in the Engineering Workbench.
- ▶ You then process the inspection plan exclusively by means of Engineering Workbench Transaction CWBQM because the functions of multiple specifications can only be executed here, and not via inspection plan.

Plant: 3000 Material: 2922 : Inspection Setup Data

S...	InspType	Short text	PreferredInsTyp	Active	Insp. typ...
<input checked="" type="checkbox"/>	01	Goods Receipt Inspection for Order	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Inspection Type: 01 Goods Receipt Inspection for Order

Detailed information on inspection type

<input checked="" type="checkbox"/> Post to insp. stock	Smpl.procedure	<input type="checkbox"/> Serial numbers poss.
<input type="checkbox"/> Insp. for HU	<input type="checkbox"/> 100% inspection	Avg. insp. duration
<input type="checkbox"/> Insp. with mat spec.	Inspection %	Q-Score Procedure 06 Q-score from ...
<input checked="" type="checkbox"/> Insp. with task list	<input type="checkbox"/> Manual sample calc.	Allowed scrap share
<input type="checkbox"/> Insp. by configuratn	<input type="checkbox"/> Manual sample entry	Control insLot For each materi...
<input checked="" type="checkbox"/> Automatic assignment	Dyn. mod. rule	<input type="checkbox"/> Individual QM order
<input checked="" type="checkbox"/> Check Chars	<input checked="" type="checkbox"/> Skips allowed	QM Order
<input checked="" type="checkbox"/> Multiple Specs	<input type="checkbox"/> Automatic UD	

Figure 3.33 Multiple Specifications in Inspection Setup Data

To set up necessary master data for multiple specifications of a material, use Transaction CQMWB or follow the menu path LOGISTICS • QUALITY PLANNING • INSPECTION PLANNING • INSPECTION PLAN • WORKBENCH. In the CURRENT WORK AREA pop-up that appears, choose Q_TSK_00000000010. Then, on the initial parameters selection screen that appears, enter the material number 2922 and task list group 259 and choose LOAD TASK LIST. You'll then see the HEADER DETAILS of material 2922, and in the QUALITY MANAGEMENT tab, ensure that the MULTIPLE SPECS checkbox is selected.

Material-Routing Assignment

The material-routing assignment requires a separate entry for the differentiation by county and an additional entry without object assignment for the task-list determination to the same task-list group counter. The aim is to store different specifications in one inspection plan, which is supposed to define whether a batch of a purchased semi-finished product is suitable for a specific country.

From the menu bar in the QM workbench, navigate to TASK LISTS • MATERIAL TASK LIST ASSIGNMENT, and Figure 3.34 appears. Here, individually enter the same material four times to denote that this multiple specifications for material 2922

will be applicable to four countries. While entering each country, choose the object (MULTI. SPECS) and the object type (MULTPSPECS) as 01 COUNTRY. Recall that you made configuration settings of six countries, but you're now using only four countries for this material.

Material	Material Description	Plant	Object (Mult. Specs)	Obj.Type (MultSpecs)
2922	Fatty Acid Concentrate	3000		
2922	Fatty Acid Concentrate	3000	USA	01 Country
2922	Fatty Acid Concentrate	3000	DENMARK	01 Country
2922	Fatty Acid Concentrate	3000	INDIA	01 Country
2922	Fatty Acid Concentrate	3000	PAKISTAN	01 Country

Figure 3.34 Material: Routing Assignment

[+] Tips & Tricks

The fields OBJECT (MULTI. SPECS) and OBJECT TYPE (MULTPSPECS) as 01 COUNTRY are located at the very far right-hand side of Figure 3.34. You can drag them next to the PLANT field to facilitate your data entry efforts.

Dependent Characteristic Specifications

Navigate to TASK LISTS • DEPENDENT CHARACTERISTIC SPECIFICATIONS to see the screen in Figure 3.35, where you first enter 10 in the leading characteristic. Next, just like in the last step, enter the material 2922 four times while choosing the relevant object (MULTI. SPECS) and the OBJECT TYPE (MULTPSPECS) as 01 COUNTRY.

L.	Del. Rec.	O.	N...	Add....	Material	Object (Mult. Specs)	Obj.Type (MultSpecs)	Short text insp.char
		005	2		2922	USA	01 Country	Fat Concentration - Mat. Specs.
		010	3		2922	DENMARK	01 Country	Fat Concentration - Mat. Specs.
		015	4		2922	INDIA	01 Country	Fat Concentration - Mat. Specs.
		020	5		2922	PAKISTAN	01 Country	Fat Concentration - Mat. Specs.

Figure 3.35 Dependent Characteristics

Next, select all four entries and choose the QUANTITATIVE DATA tab. Enter the lower and upper specification limits that are valid or applicable to each of the four countries.

Let's now cover the business processes of multiple specifications.

3.3.3 Business Processes in Multiple Specifications

Figure 3.36 shows inspection lot 3529 that the system creates after you perform the normal procurement process, and which triggers inspection lot creation of inspection type 01. This is the results recording screen (Transaction QE01) for inspection lot 3529, and you enter the actual result 100.000. The system performs the valuation as accepted (green checkmark).

A.	R.	S	Short text for the...	Specifications	Inspect	Inspected	S...	Result	Original Value	Valuation	Defect class
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5	Fat Concentration - ...	90.00 .. 120.00	5	5	Pos	100.000	100	✓	

Figure 3.36 Inspection Results

Choose the MULTIPLE SPECIFICATIONS tab to go to Figure 3.37, which shows that while the valuation is accepted, the VAL. MS (valuation multiple specifications) finds two countries each with accepted (Denmark and Pakistan) and rejected (United States and India) valuations. The system denotes the accepted valuation with green traffic light, and rejected with a red traffic light. For quick reference, the country-wise relevant specifications (SPECS) are also visible in Figure 3.37.

Figure 3.38 shows the usage decision screen (Transaction QA11) for inspection lot 3529. In the MULTIPLE SPECIFICATIONS tab, you can see the valuation results from your previous step (results recording). However, the VALUATION column is blank at the UD stage.

Operation/Char./Object	Text	Valuation	Val. MS	Res./Specs	Specs
Multiple Specification					
0010/0010	Fat Concentration - Mat. Specs.()	✓ A	△ M	Actual	100.000 90.00 .. 120.00
Country:US	United States		⊗ R	Target:110.00 .. 120.00	110.00 .. 120.00
Country:DK	Denmark		⊗ A	Target:90.00 .. 105.00	90.00 .. 105.00
Country:IN	India		⊗ R	Target:106.00 .. 115.00	106.00 .. 115.00
Country:PK	Pakistan		⊗ A	Target:100.00 .. 110.00	100.00 .. 110.00

Figure 3.37 Results Recording with Multiple Specifications

Click the PROPOSE VALUATION button in ❶, and the system updates the relevant VALUATION column that you see in ❷.

Record Usage Decision: Characteristic Overview

Inspection Lot: 3529
 Material: 2922 Fatty Acid Concentrate
 Batch: 0000000650 0001
 System Status: UD ICCO SPRQ PRSI
 Insp. End Date: 10.11.2014

Buttons: Defects, Characteristics, Inspection lot stock, Multiple Specification, Documents, Propose Valuation

Object/Operation/Char.	Text	Valuation	Val. MS	Res./Specs	P
Multiple Specification					
Country:US	United States		⊗ R	Target:110.00 .. 120.00	
0010/0010	Fat Concentration - Mat. Specs.()		⊗ R	Target:110.00 .. 120.00	
Country:DK	Denmark		⊗ A	Target:90.00 .. 105.00	
0010/0010	Fat Concentration - Mat. Specs.()		⊗ A	Target:90.00 .. 105.00	
Country:IN	India		⊗ R	Target:106.00 .. 115.00	
0010/0010	Fat Concentration - Mat. Specs.()		⊗ R	Target:106.00 .. 115.00	
Country:PK	Pakistan		⊗ A	Target:100.00 .. 110.00	
0010/0010	Fat Concentration - Mat. Specs.()		⊗ A	Target:100.00 .. 110.00	

Figure 3.38 Usage Decision Multiple Specifications

Tips & Tricks

If you've also set up the copy of inspection results into batch classification, which we covered in Section 3.2.3, the system also transfers results at inspection-lot level transfers of characteristics to the batch classification.

Figure 3.39 shows the inspection plan (Transaction QP03) of material 2922 and plant 3000. The HEADER DETAILS in ❶ shows that the MULTIPLE SPECS checkbox is automatically selected. The DEPENDENT CHARACTERISTIC SPECIFICATION in ❷ is available only for reference purpose, and as already explained, you can only make changes using Engineering Workbench (Transaction CWBQM).

Display Inspection Plan: Header Details ❶

Material: 2922 Fatty Acid Concentrate
 Task list: 259
 Group Counter: 1
 Plant: 3000
 General data: Multiple Specs

Display Inspection Plan: Dependent Characteristic Specifications ❷

Material: 2922 Fatty Acid Concentrate Grp.Count1
 Oper./Act.: 0010
 Characteristic: 10 Fat Concentration - Mat. Specs.
 Quantitative char. (lower/upper tolerance), Summarized recording, Required char., Fixed scope

N...	Material	Material Description	Plant	Group Counter	Lower spec. lmt	Upper Limit	Decimal places
5	2922	Fatty Acid Concentrate	3000	1	110.00	120.00	2
10	2922	Fatty Acid Concentrate	3000	1	90.00	105.00	2
15	2922	Fatty Acid Concentrate	3000	1	106.00	115.00	2
20	2922	Fatty Acid Concentrate	3000	1	100.00	110.00	2

Figure 3.39 Multiple Specifications in Inspection Plan

Note

You can also print outgoing quality certificates of materials with multiple specifications. Refer to Chapter 10 on quality certificates.

3.3.4 Example: Create and Integrate New Inspection Type in Business Process

In Chapter 2, we explained that creating new inspection types to meet business needs normally doesn't serve the purpose because the functions and functionality offered are the same as you find with standard inspection types. However, in unique business scenarios, when you need to distinguish a quality inspection process from routine or normal inspection, you proceed with necessary configuration of a new inspection type and its associated dependent configuration that enables you to run the business process.

The example in this section shows that you want to create a new inspection type to attend to special inspection needs of tea leaves that come from specific tea gardens—Darjeeling and Kenya gardens.

Here, you perform step-by-step configuration steps and assign the configured objects to master data that lets you run the business process. Let's get started.

Configuration Settings

You need to perform following four configurations steps:

- ▶ Create task list usage
- ▶ Create inspection type and assign task list usage
- ▶ Assign inspection type to inspection lot origin
- ▶ Maintain default values for inspection type

Create Task List Usage

You're already familiar with the concept of inspection types from Chapter 2. If an inspection type is active, the system creates an inspection lot after a particular event, even if there is no inspection plan yet. This event can be a goods receipt for the goods movement for a purchase order or simply a manual inspection lot creation. When the system creates an inspection lot, it looks for the relevant task list usage that you have assigned in the inspection plan. You create a new task list usage to distinguish it from your regular inspection or standard task list usage available in the system.

To create a new task list usage, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL •

DEFINE TASK LIST USAGES. Create a new task list usage 890; enter its description, which later helps you with clearly identifying its usage; and stipulate that the task list usage will be available for material only by choosing 001 in the DCR field.

Maintain Inspection Type

The QM component uses *inspection types* to control the inventory movement, for example, a material purchased, produced, or transferred when receiving the material in inventory. Inspection types can keep the inventory from becoming available for further use.

To create a new inspection type, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT CREATION • MAINTAIN INSPECTION TYPES. You'll see the inspection type overview, where you create the new inspection type 8901 by using the copy function to copy from inspection type 89. Enter the short text of the newly created inspection type.

Choose inspection type 8901, and then choose DETAILS (or double-click inspection type 8901), which leads to Figure 3.40.

Figure 3.40 Inspection Type Details

Table 3.4 explains the details of each field of Figure 3.40.

Field	Details	Remarks
Inspection Lot Processing		
STATUS PROFILE	A status profile provides greater control over the activities while performing business transactions. A status profile, for example, can allow or disallow results recording while having a specific status.	Chapter 14 covers the status profile that you create first and assign in this field.
ORDER TYPE	These are QM component-specific order types (QL01 and QL02) for appraisal cost recording.	Chapter 12 covers quality costs.
PHYSICAL-SAMPLE TYPE	Various physical sample types are available that directly correlate with the area of working. For example, inspection type 04, which is for goods receipt against production, has the option of physical sample type 02, which is for sample from production.	Chapter 9 covers sample management.
UD SELECTED SET	An option to assign a selected set for a usage decision (UD) to an inspection. This ensures that only relevant codes and code groups appear while taking UD.	
SELECTED SET IN SAME PLANT	Checkbox, if selected, brings up only the plant-specific selected set.	
Print Control		
PRINT SAMPLE DRAWING INSTR. IMMED.	Checkbox, if selected, immediately prints sample-drawing instructions upon creation of an inspection lot.	Chapter 9 covers sample management.
PRINT INSP. INSTRUCTION IMMEDIATELY	Checkbox, if selected, immediately prints inspection instructions upon creation of an inspection lot.	

Table 3.4 Field Details of Inspection Type

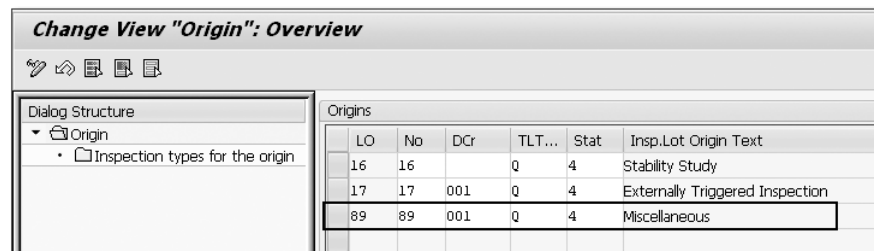
Field	Details	Remarks
DISPLAY DETAILED NOTIFICATIONS	Checkbox, if selected, immediately displays a pop-up with detailed reasons for the print failure.	
Inspection Results		
RECORDING VIEW	There are several available options to choose from on how you'd like to see and let the system function during inspection results recording.	
NOTIFICATION TYPE	Notification type is assigned in case defects are recorded during results recording. The system automatically creates these notifications while recording defects.	Chapter 11 covers quality notification.
ONE Q-NOTIFICATION PER INSP. LOT	Checkbox, if selected, creates one complete quality notification for the entire inspection lot, instead of creating it for each defect within the same inspection lot.	
Inspection Planning		
TASK LIST USAGE	A unique identifier for routing or master recipe, which is considered during inspection planning.	Assign task list usage 890, which you created in the previous step.
Operations Data for Material Specification		
CONTROL KEY	A control key has to be assigned by default in case inspection is undertaken by the material specification (and not task list). A value given here is then used as the default.	
OPER./ACT.	A default operation number is assigned for material specification (and not in the case of task list).	
OPR. SHORT TEXT	Short text of the operation.	

Table 3.4 Field Details of Inspection Type (Cont.)

Maintain Inspection Lot Origins and Assign Inspection Types

When you create a new inspection type, you need to assign it to the inspection origin. An important point in the context of inspection planning is that you can assign multiple inspection types to an inspection lot origin, but you can't assign one inspection type to different inspection lot origins at the same time. It's also important to note that you can't add a new inspection lot origin (unlike with inspection types and inspection plan usage) because these tables are located in the SAP ERP namespace.

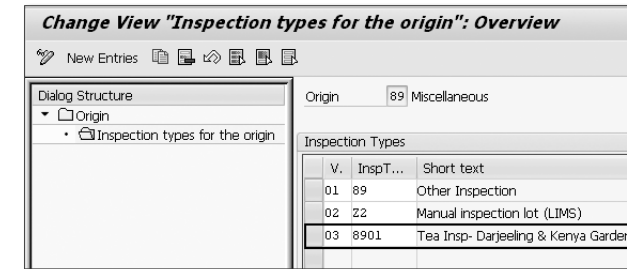
To assign a newly created inspection type to an inspection origin, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT CREATION • MAINTAIN INSPECTION LOT ORIGINS AND ASSIGN INSPECTION TYPES. Figure 3.41 consists of various inspection lot origins. The column LO (lot origin) is the inspection lot origin, while the column No represents the number range that is associated with the inspection origin. All the inspection types that you assign to a particular inspection origin will have the same number range. The column TLT... (task list type) and value Q represent the task list type—inspection plan.



LO	No	DCr	TLT...	Stat	Insp.Lot Origin Text
16	16		Q	4	Stability Study
17	17	001	Q	4	Externally Triggered Inspection
89	89	001	Q	4	Miscellaneous

Figure 3.41 Assignment of Inspection Type to Inspection Origin

Chose inspection origin LO 89 and then choose INSPECTION TYPES FOR THE ORIGIN on the left-hand side of the figure. This takes you to Figure 3.42, where you create a new entry of the newly created inspection type (INSP T...) 8901. The inspection origin 89 already has two inspection types—89 and Z2—assigned to it, to which you're adding the third inspection type (8901).



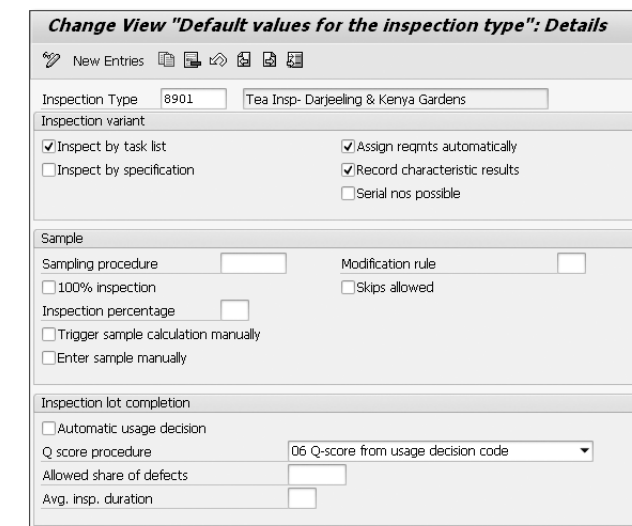
V.	InspT...	Short text
01	89	Other Inspection
02	Z2	Manual inspection lot (LIMS)
03	8901	Tea Insp- Darjeeling & Kenya Gardens

Figure 3.42 Inspection Origin for Inspection Type

Define Default Values for Inspection Type

For each inspection type, you can make default settings that are then available when you assign them to the material master. These defaults can then save time and effort in individually assigning or un-assigning value or selecting or deselecting checkboxes. Typically, you use SAP defaults.

To set default values to inspection types, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT CREATION • DEFINE DEFAULT VALUES FOR INSPECTION TYPES. In the screen that appears, choose inspection type 8901, and then choose DETAILS, which brings up Figure 3.43.



Inspection Type: 8901 | Tea Insp- Darjeeling & Kenya Gardens

Inspection variant

Inspect by task list Assign reqmts automatically

Inspect by specification Record characteristic results

Serial nos possible

Sample

Sampling procedure: Modification rule:

100% inspection Skips allowed

Inspection percentage:

Trigger sample calculation manually

Enter sample manually

Inspection lot completion

Automatic usage decision

Q score procedure: 06 Q-score from usage decision code

Allowed share of defects:

Avg. insp. duration:

Figure 3.43 Default Values for Inspection Type

Figure 3.43 consists of all the fields that we already covered for inspection types in Chapter 3.

This brings us to the end of the configuration settings and steps that you need to ensure exist for the new inspection type. The next section covers assigning these configuration settings to your master data.

Master Data Setup

Access Figure 3.44 for material 2037 and plant 3000 (Transaction MM02) and assign the newly created inspection type 8901. Also, notice that the previously assigned inspection type 89 is also activated. You'll see how these two inspection types become available while creating a manual inspection lot. Be sure to select the ACTIVE checkbox for both the inspection types (89 and 8901); otherwise, these won't be available during inspection lot creation.

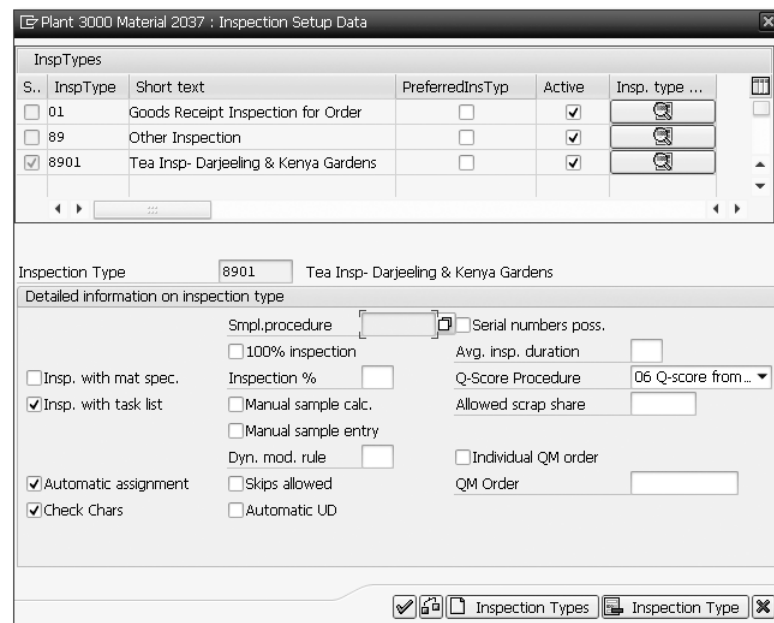


Figure 3.44 Inspection Setup Data for Inspection Type

Figure 3.45 shows the inspection plan of material 2037 and plant 3000 (Transaction QP02). Here, you assign the newly created usage 890, and set the status of

the inspection plan to 4 (RELEASE). The system saves this inspection plan as GROUP 245 and GROUP COUNTER 2. While not shown here, you need to ensure that you completely maintain the inspection plan as part of your master data maintenance, which was covered in detail in Chapter 2.

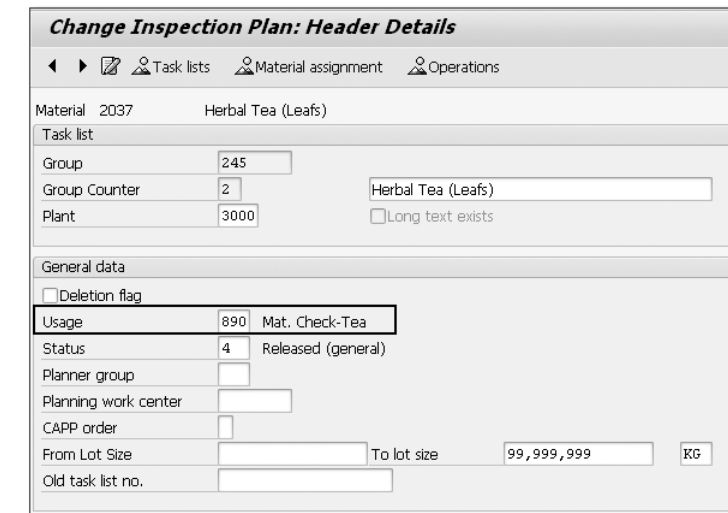


Figure 3.45 Inspection Plan: Header Details

This completes the minimal master data that you need to maintain to put the newly created inspection type to use. The next section covers the business process.

Business Process

To manually create a new inspection lot, use Transaction QA01 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT PROCESSING • CREATE. Figure 3.46 shows the inspection lot (manual) creation screen. Enter material 2037 and plant 3000, and when you enter inspection lot origin 89, the system brings up a pop-up that contains the two inspection lots that you assigned to this material in the previous step. Choose inspection type 8901 from the list, and this leads to Figure 3.47.

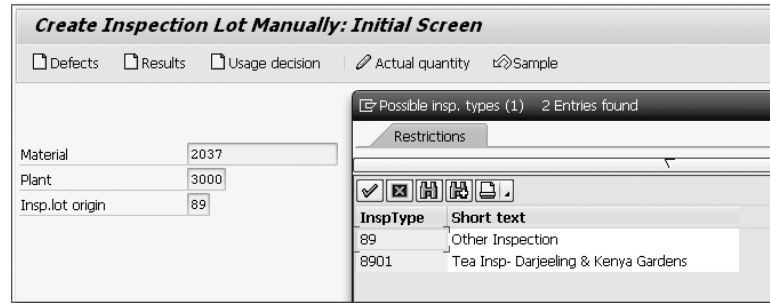


Figure 3.46 Inspection Lot Creation

Figure 3.47 shows the inspection type 8910 of inspection lot origin 89. Notice the inspection lot number also begins with the number 89, and in this case, the inspection lot number is 890000000552. Choose the INSP. SPECIFICATIONS tab, and Figure 3.48 appears.

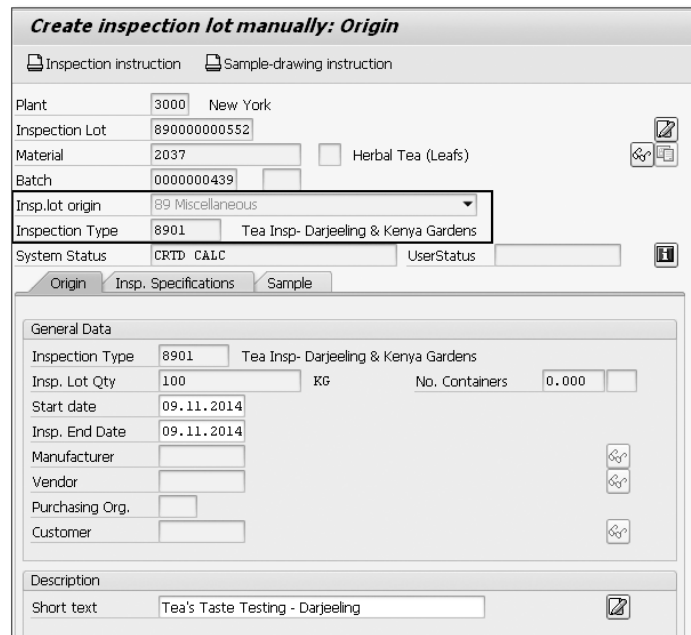


Figure 3.47 Inspection Type 8901

Figure 3.48 shows automatic assignment of usage 890, group 245, and group counter 2.

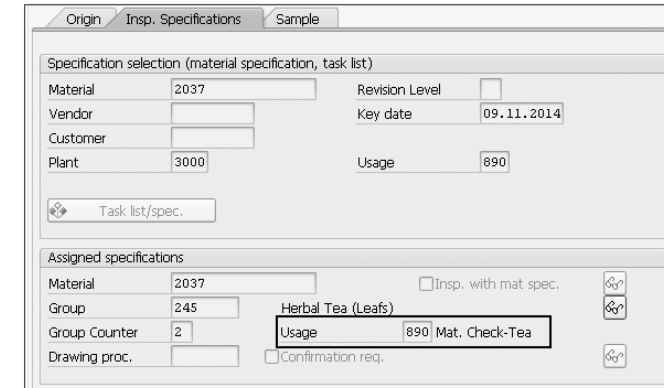


Figure 3.48 Inspection Type Usage

Inspection Lot Processing

Access Figure 3.49 using Transaction QA32, which is the inspection lot worklist and which you can use for inspection processing, such as results recording or taking usage decision.

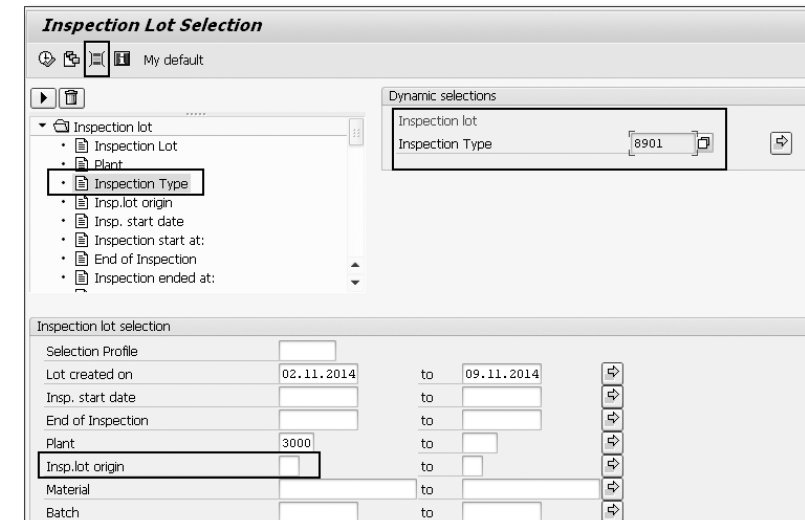


Figure 3.49 Inspection Lots: Initial Screen

On the parameters selection screen, you will only find INSP.LOT ORIGIN, but no provision to enter an inspection type. For this, use DYNAMIC SELECTIONS (the tri-colored

icon), and in the INSPECTION LOT folder that you see on the left-hand side of the screen, choose INSPECTION TYPE by double-clicking it. This brings up the provision of INSPECTION TYPE that you see on the right-hand side of the screen. Enter inspection type 8901, and choose EXECUTE to go to Figure 3.50.

Figure 3.50 shows an inspection lot worklist that contains two inspection lots. Here, you can choose an inspection lot, record its results, record defects, or take usage decision.

Monitor	Inspection Lot	Material	Plant	Lot Qty	BUIn	LTChar	STChar	Start date	End Date	System Status
CO	890000000551	2037	3000	100	KG	1	4	09.11.2014	09.11.2014	REL CALC
CO	890000000552	2037	3000	100	KG	1	4	09.11.2014	09.11.2014	REL CALC

Figure 3.50 Inspection Lots Worklist



Note

Refer to Chapter 18 on reporting, which also covers inspection lot worklists (Transaction QA32).

The next section covers the configuration basics of quality planning and quality inspection.

3.4 Configuration Basics: Quality Planning and Quality Inspection

This section covers configuration basics of quality planning and quality inspection.



Note

If you see a few configuration objects not covered in this chapter while navigating the configuration menu paths in quality planning or quality inspection, don't worry. We've covered them in this book where it makes sense to maintain a logical link between configuration objects, assigning them to master data, and showing their impacts on business processes.

Similarly, several configuration objects—for example, status profile or fields selection—apply to various business processes. To avoid repetition, we cover them once in this

book, and you can apply them to your relevant business processes. We do, however, provide extensive cross-referencing to help you to quickly find relevant details in this book.

3.4.1 Client Settings

After you create the client and transfer the default settings, you can customize the settings to each individual client level. To maintain version control, save older versions of master inspection characteristics and inspection methods before adding newer versions. You can also leave the remaining options at their default settings. To maintain settings at the client level, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • BASIC SETTINGS • MAINTAIN SETTINGS AT CLIENT LEVEL. Table 3.5 explains the fields of Figure 3.51.

Figure 3.51 Settings at the Client Level

Field	Description
REPLACE MASTER INSP. CHARAC.	A control function, which if selected enables the system to trigger replacement of the MIC of the latest version in the inspection plan and material specification.
REPLACE INSPECTION METHOD	A control function, which if selected enables the system to trigger replacement of the inspection method of the latest version in the inspection plan and material specification.
DISTRIBUTE INSPECTION CHARAC.	Application Link Enabling (ALE) acts as an interface between SAP and other third-party software or programs. If selected, ALE distributes MIC data between the SAP ERP system and third-party QM programs.
DISTRIBUTE INSPECTION METHOD	If selected, it distributes the inspection method between the SAP ERP system and third-party QM programs.
DISTRIBUTE CODE GROUP	If selected, it distributes the code group between the SAP ERP system and third-party QM programs.
UNPLANNED CHARACTERISTICS	The number range of unplanned or additional MICs that you add to an existing inspection lot, prior to its results recording
CHARS FROM SPEC/CONFIG/BATCH	The number range of unplanned or additional MICs that you can add to an existing inspection lot, prior to results recording.
MULTIPLE SPECS	A control function that, when checked, allows the system to value the material or inspection lot differently, depending on specific business requirements. See Section 3.3 on multiple specifications.
HIGHEST QUALITY SCORE	Highest quality scores that form the basis of quality score calculations. It cannot be greater than 100.
LOWEST QUALITY SCORE	Highest quality scores that form the basis of quality score calculations. This score cannot be less than 1.

Table 3.5 Client Settings

Field	Description
LOWER LIMIT FOR GOOD QUALITY	Minimum threshold value for quality vendor scores that meet the company's quality criteria.
VALN RULE FOR LOT-BASED DYN.MOD.	A standard SAP ERP system function module to calculate the valuation mode for inspection lot-based dynamic modification rule (DMR).
BOM USAGE	The bill of materials (BOM) usage, such as PP01, that automatically integrates with the QM component.

Table 3.5 Client Settings (Cont.)

3.4.2 Plant Settings

You can set plant-wise settings, such as inspection characteristics and inspection methods, physical-sample location, report types, print control, and account assignment parameters. When the system is unable to find specific master data in quality planning, it refers to the information or settings maintained in the plant settings. You need to maintain plant-specific settings for each plant in which QM component is active.

To maintain settings at the plant level, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • BASIC SETTINGS • MAINTAIN SETTINGS AT PLANT LEVEL. In the screen that appears, choose plant 3000, and you come across the following five tabs, which we'll discuss in the following subsections:

- ▶ Basic data
- ▶ Inspection lot creation
- ▶ Results recording
- ▶ Inspection lot completion and
- ▶ General settings

Basic Data

With these two checkboxes selected (see Figure 3.52 ❶), when you create or change a master inspection characteristics and inspection methods, the system automatically assigns versions to them. Doing so preserves necessary historical information about the characteristic or inspection method for record keeping.

Inspection Lot Creation

Table 3.6 explains the fields of Figure 3.52 ②.

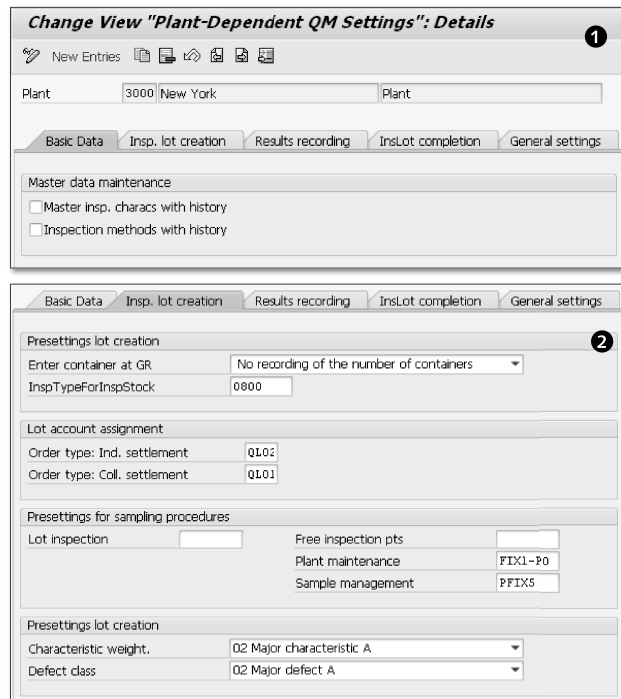


Figure 3.52 Settings at the Plant Level

Field	Description
ENTER CONTAINER AT GR	Selecting this option makes it either optional or mandatory to define the number of physical containers used during inspection. See Chapter 9 on sample management, where we put this option to use.
INSPFORINSPSTOCK	A special inspection type 0800 is assigned here to ensure that the system is able to create inspection lots for materials that were previously in quality inspection stock (but without the QM component active) but will now have to undergo quality inspection using the QM component. See Chapter 6, where we put this option to use.

Table 3.6 Inspection Lot Creation

Field	Description
ORDER TYPE: IND. SETTLEMENT	This QM order type collects quality-related costs incurred on an individual basis. See Chapter 12, where we put this option to use.
ORDER TYPE: COLL. SETTLEMENT	This QM order type collects quality-related costs incurred on a collective basis. For example, instead of accumulating all costs for QM activities on one QM order, define a cost collector here. See Chapter 12, where we put this option to use.
LOT INSPECTION	This is the highest plant-level sampling procedure assigned to an inspection lot. A sampling procedure is a defined way in which the sample of an inspection lot is calculated. A few sampling procedure are fixed sample, percentage sample, 100% inspection, and using sampling scheme.
FREE INSPECTION POINTS	The sampling procedure for free inspection points.
PLANT MAINTENANCE	A special sampling procedure for the Plant Maintenance component. You can provide a default value for it here. See Chapter 7 on QM integration with the PM component.
SAMPLE MANAGEMENT	A sample management procedure in which a company-owned or competitor's product samples are analyzed. See Chapter 9, where we put this option to use.
CHARACTERISTIC WEIGHT	Default settings used by the system when you don't specify a characteristic weight when you create a lot inspection.
DEFECT CLASS	Defects are classified as critical, major, and minor. The system uses the default value when you don't enter the required value during defects recording.

Table 3.6 Inspection Lot Creation (Cont.)

Results Recording

Choose the RESULTS RECORDING tab in of Figure 3.52 ② to go to Figure 3.53. Table 3.7 explains the fields of Figure 3.53.

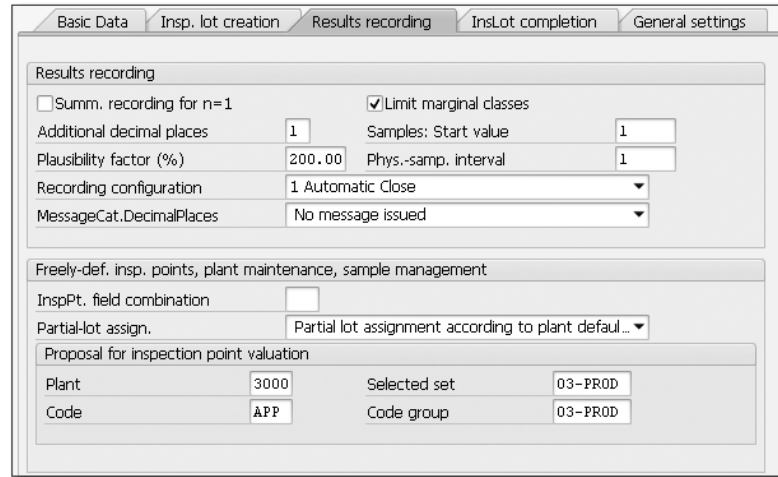


Figure 3.53 Results Recording in Plant Settings

Field	Details
SUMMARY RECORDING FOR N=1	Always shows summarized results for all inspection lots during evaluation and reporting.
LIMIT MARGINAL CLASSES	Considers plausibility factors for quantitative characteristics.
ADDITIONAL DECIMAL PLACES	While the SAP ERP system uses accurate internal calculations for statistical purposes, the value defined here allows a user to display the same value while executing QM reports.
SAMPLES: START VALUE	Default start value that is internally assigned by the SAP system when multiple samples of an inspection lot are present.
PLAUSIBILITY FACTOR (%)	A percentage value that the system uses in combination with upper and lower limits of quantitative characteristics. For example, a 200% plausibility factor means that characteristic with an upper tolerance limit of 100 have a plausibility limit of 200 (twice), and those with a lower tolerance limit of 50 will have a plausibility limit of 25 (half).

Table 3.7 Results Recording

Field	Details
PHYS.-SAMP. INTERVAL	The default start value is internally assigned by the SAP ERP system when multiple samples of a physical sample are present.
RECORDING CONFIGURATION	A sequence that occurs on completion of results recording of an inspection. An AUTOMATIC CLOSE option closes the characteristic as soon as the results are entered and the characteristic is valued.
MESSAGECAT.DECIMALPLACES	Occurs when there are calculations involved. For example, in calculated MICs, this field controls whether the system issues an error, warning, or informational message when an overflow in calculated values occurs.
INSPPT. FIELD COMBINATION	Default value the system uses if it's unable to find the required inspection point for an inspection lot.
PARTIAL-LOT ASSIGN.	A default value the system uses to look for supported and unsupported partial inspection lots. This value has lower precedence when the system is able to find a relevant value in the task list of the material. When it doesn't, it looks for values in this field (plant level) and functions for both supported and unsupported partial lots.
PLANT	The value given here can be used as a reference to another plant. For example, if plant 2200 needs to refer to plant 1000 for codes, a code group, or a selected set, then a value "1000" must be assigned to plant "2200."
SELECTED SET	Together with the plant value above, you can use the selected set value as reference to another selected set.
CODE	Default code proposed by the system when it's unable to find the code in the inspection point.
CODE GROUP	A code group automatically suggested for evaluating the inspection point.

Table 3.7 Results Recording (Cont.)

Choose the INSPECTION LOT COMPLETION tab in Figure 3.53.

Inspection Lot Completion

Table 3.8 explains the fields of Figure 3.54 ❶. We recommend that you engage your Controlling (CO) resource to help you decide which values go in these fields that will eventually have costing or financial impacts.

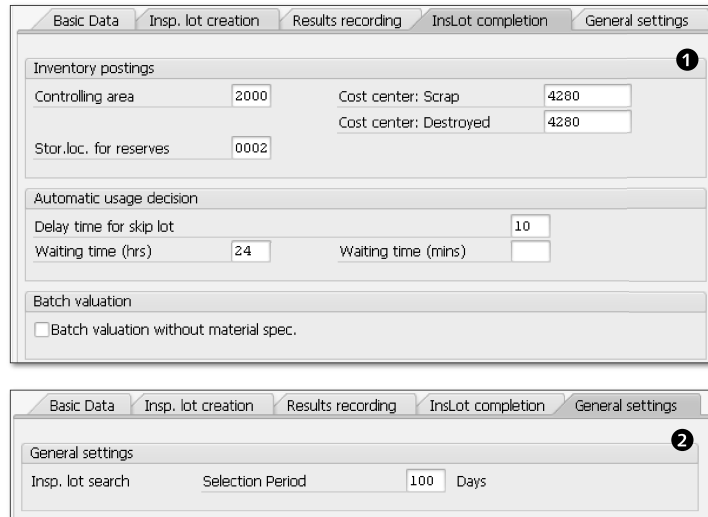


Figure 3.54 Inspection Lot Completion in Plant Settings

Field	Details
CONTROLLING AREA	Default controlling area to go with the plant value.
COST CENTER: SCRAP	Default cost center for scrapping the material during usage decision.
COST CENTER: DESTROYED	Default cost center for destroying the material during usage decision.
STOR.LOC. FOR RESERVES	Default storage location to move material or reserve stock during usage decision.
DELAY TIME FOR SKIP LOT	An inspection lot must wait a minimum (enter value in this field) before the system considers it for SKIP inspection lot automatic usage decision.
WAITING TIME (HRS)	Waiting time, in hours, before automatic usage decision begins.

Table 3.8 Inspectoin Lot Completion

Field	Details
WAITING TIME (MINS)	Together with the number of hours, a waiting time, in minutes, before the system takes automatic usage.
BATCH VALUATION WITHOUT MATERIAL SPEC.	Checkbox that requires that characteristics in a batch be directly synchronized with material specifications so that results recording can be successfully performed. This option is helpful when you want to transfer inspection results to batch classification. See Section 3.2.3, where we put this option to use.

Table 3.8 Inspectoin Lot Completion (Cont.)

Choose GENERAL SETTINGS in Figure 3.54 ❶ to go to Figure 3.54 ❷.

General Settings

The system uses the value that you enter in Figure 3.54 ❷ to calculate the starting date of the selected time period. You can override this default setting while executing a worklist or report.

While the SAP ERP system delivers standard quality planning settings and standards right out of the box, you need to evaluate them to see if they fit your business requirements. If they don't, you can modify the existing standards or create new ones.

3.4.3 Quality Planning

The following sections will cover settings and options that you'll find in the quality planning configuration menu of the QM component.

Defect Classes

You may have different types of defect classes, such as critical or minor defects. You can categorize the defects into different catalog types, such as quality defects or plant maintenance defects. The SAP ERP system characterizes defects into five different defect class categories. You can choose to work with the defaults for defect classes or create new ones.

To create defect classes, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • CATALOG • DEFINE DEFECT

CLASSES. Figure 3.55 ❶ shows an overview of various defect classes. Choose DFCT CLASS 01 in ❶ so that the detailed view of the defect appears as in ❷. The system displays the QUALITY SCORE in ❷. The critical or more severe a defect, the lower the quality score. Together with the quality score in a defect class, the system uses characteristic weighting to come up with an overall quality score of an inspection lot, which forms the basis of vendor evaluation.

The system calculates the quality score based on the following equation:

$$\text{Quality Score} = \text{Quality Score in Defect Class} \times \text{Characteristic Weighting} / \text{Sum Total of all Characteristic Weightage}$$

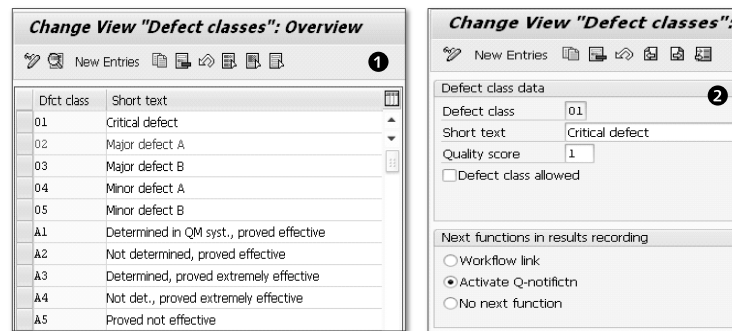


Figure 3.55 Defect Classes

If you select the checkbox DEFECT CLASS ALLOWED, the system offers the provision to enter a defect class with defect codes, even though you have marked the valuation of the characteristic as "accepted." In other words, even the accepted MIC can still have defects, and this checkbox provides the necessary option. Not choosing the checkbox only enables you to choose a defect class when you have a rejected valuation of a characteristic.

The NEXT FUNCTIONS IN RESULT RECORDING area allows you to include the WORKFLOW LINK, ACTIVATE QM-NOTIFICATIONS or has no next or follow-up function after recording a defect class.

Catalogs

In the context of quality planning and quality inspection, the term *catalog* refers to a collection of unique keys that describe a subject, both in the positive and the negative sense. A catalog is a group of codes that you normally use to categorize

different aspects and activities of the QM (and PM) component and include defects, causes, tasks, actions, or usage decisions. An example of a catalog of defects can be defect codes, which contain all the possible defects of electrical or mechanical parts of the machinery.

In the SAP ERP system implementation project, designing the defect catalogs and other catalogs often takes up significant time and efforts because the existing catalog structures in the enterprise have to be migrated to a schema that suits the QM component. Therefore, the most frequently occurring problem is not missing catalogs, but rather the sheer number of catalogs and the fact that problem descriptions often overlap. The better-suited and practical approach of classifying problem descriptions in catalogs according to defect location, defect type, and defect cause also often causes uncertainty with assigning the corresponding codes.

Catalog Types

You can select the defaults for catalog types or add additional ones if there is a business need. To view the available catalog types, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • CATALOG TYPES. Figure 3.56 shows the initial screen of catalog types. You must not change SAP catalog types 1–9. However, you can create new catalog types within the P–Z range.

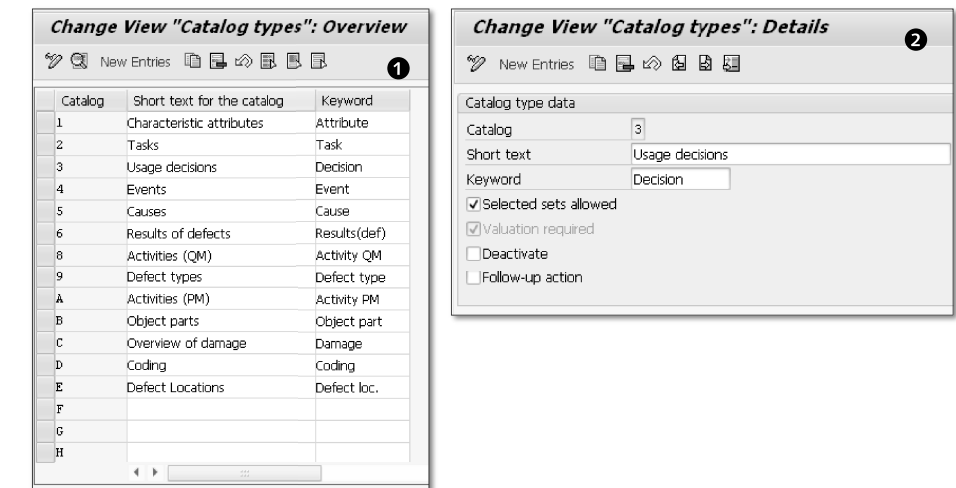


Figure 3.56 Catalog Types

The following catalog types are available in the SAP ERP system:

► **Catalog type 1: Characteristic attributes**

This catalog type is specific to results recording and is for defining qualitative characteristics. It has special importance in the catalog system. One reason for this is that you can maintain both OK and NOK definitions here; another is that you can only assess the catalog entries only via selected sets. If you're using a rejected-defect class for vendor evaluation, you have to enter a defect class (major defect, minor defect, etc.). Rejecting defect classes are by nature the same as the defect types (defects) and are structured in the same way. If a qualitative characteristic has been created in the inspection plan, the valuation always uses a code from the selected set of the characteristic attributes.

► **Catalog type 2: Measures**

You use this catalog to store the measures that are necessary in the context of quality notifications. Examples of typical measures can be vendor visit, test equipment calibration, construction change, or a process-capability test. You can also activate automatic follow-up action functions here.

► **Catalog type 3: Usage decisions**

The system uses this special catalog type only for inspection lot completions. You can only access this via selected sets. Every code in the selected set has further control functions that you can use to accept or reject valuation:

- Valuation (lot decision)
- Quality score
- Follow-on action

► **Catalog type 4: Events**

This catalog type contains events for the PM component.

► **Catalog type 5: Causes**

This catalog type is also used in quality notifications. Typical defect causes are, for example, tool breakage, incorrect storage, transport damage, and incorrect delivery specification.

► **Catalog type 6: Consequences of defects (PM)**

This catalog type contains the consequences of defects for the PM component.

► **Catalog type 8: Actions**

You define the actions to take as a result of measures. We recommend that you

use only measures in the quality notifications because it's usually difficult to make a clear logical distinction between measures and actions.

► **Catalog type 9: Defect types**

As with the characteristic attributes, you can assign defect classes to this catalog type.

► **Catalog type A: Activities**

This catalog type contains the activities catalog for the PM component.

► **Catalog type B: Object parts**

This catalog type contains the object parts catalog for the PM component.

► **Catalog type C: Damage (PM)**

This catalog type contains the damage catalog for the PM component.

► **Catalog type D: Codes**

This catalog type contains the general description that is used as the title or subject of messages (error message, problem message, complaint, etc.). These entries are also the titles for the error-description text.

► **Catalog type E: Defect locations**

The catalog structure is the same as the general definition.

Tips & Tricks

When the system displays the catalog entries in the results recording or in the quality notifications, only the description of the code with its short text and key are visible. If you also want the system to display the associated code group, enter the symbol & in the code group text. The system inserts the code text into the code group text in place of the & symbol.

[+]

To edit a catalog, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • CATALOG. In the pop-up that appears, choose EDIT CODE GROUPS AND CODES (you can directly use Transaction QS41 to edit the catalog) and add your own code groups and codes. Figure 3.57 shows the catalog 3 for usage decisions and with code group 01. Within each code group, you maintain individual codes and their descriptions.

Go back to the pop-up once again and choose EDIT SELECTED SETS. (You can also use Transaction QS51 to directly edit the selected sets.)

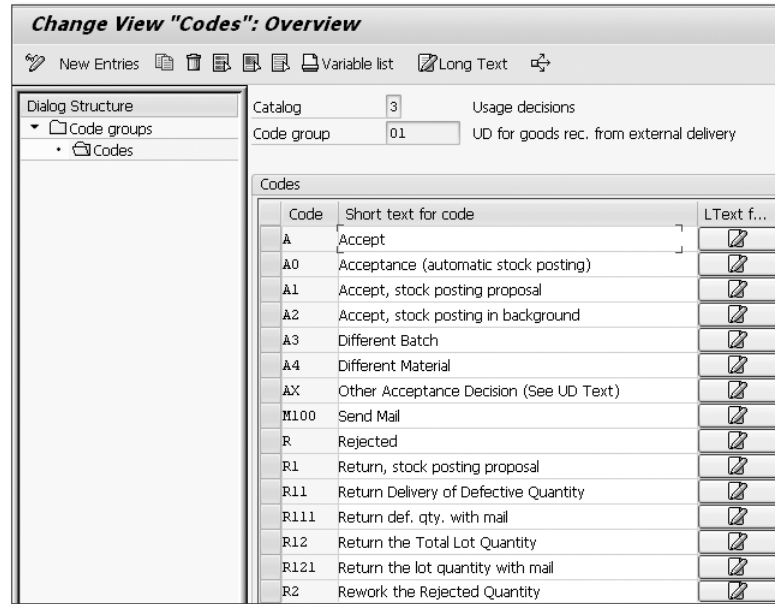


Figure 3.57 Catalog Type for Usage Decision

Catalog Hierarchy

The *catalog hierarchy* usually has three levels, but in the case of catalogs with selected sets, it has four. These are catalog types 1 (characteristic attributes) and 3 (usage decisions), and they have an extra hierarchy level, known as *selected sets*. You can use this extra level to group subsets of a code group according to higher criteria. Also, you assign an ACCEPT or REJECT valuation to every code in a selected set. You can also assign a follow-up action to the individual codes.

Figure 3.58 shows the catalog 3 (usage decisions) for plant 3000 and selected set 01 (goods receipt). Notice that the first column is the code group of selected set 01, whereas the second column is the individual code within the selected set. Each code of a selected set can have a Valuation code, such as ACCEPTED (OK), REJECTED (NOT OK), or NOT VALUATED. The column Q... is for quality scores; here, you can assign a quality score that is associated with each code of a selected set.

Referring to the column POSTING PROPOSAL UD for a specific UD code of a selected set, you can leverage the system to automatically propose and then take necessary action based on the specific UD code for the selected set for usage decision. Figure 3.59 shows the options available.

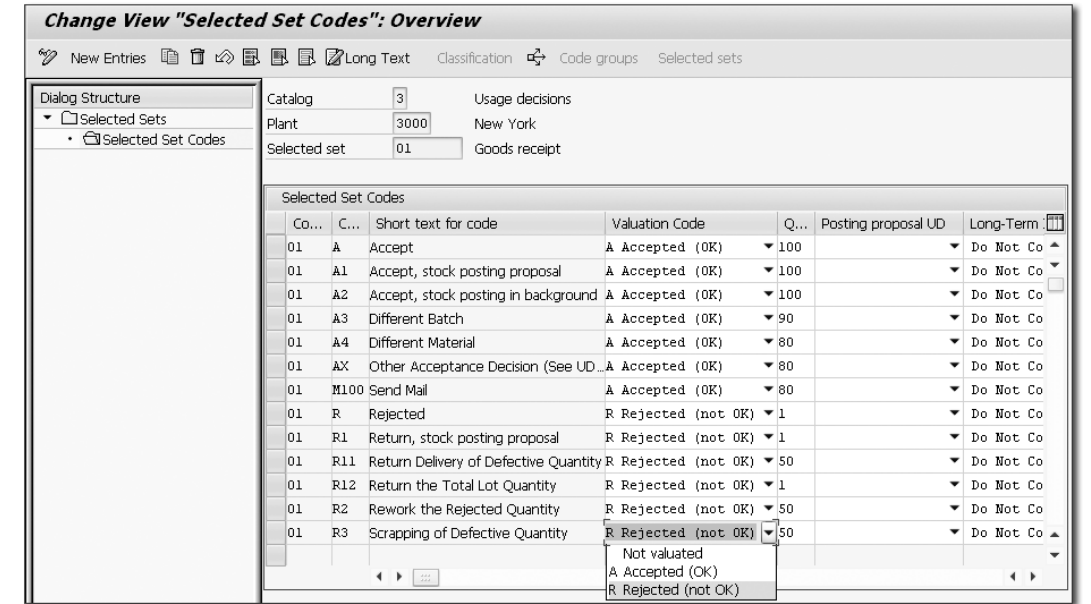


Figure 3.58 Selected Set

Figure 3.59 offers you various options of POSTING PROPOSAL UD that are directly associated with the specific code of the selected set.

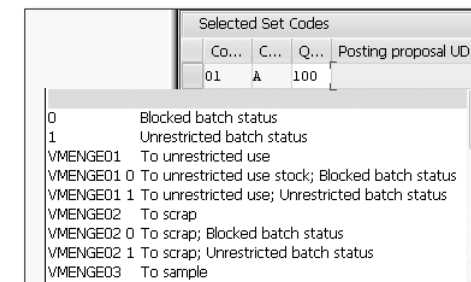


Figure 3.59 Stock Posting Options in the Selected Set

Tips & Tricks

Remember that you can assign UD SELECTED SET and its corresponding plant in an inspection type so that during UD, the system brings up only the relevant UD codes for you to choose from. Refer to Section 3.3.4.



Define Default Values for Control Indicators

The control indicator saves a significant amount of time and effort during MIC creation. During MIC creation, the user needs to select certain checkboxes. However, creating a control indicator and then assigning it in an MIC automatically enables all checkbox options.

While creating MICs, look for the field PRESET INDICATORS, and then enter the code there.

To define default values for control indicators, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE DEFAULT VALUES FOR CONTROL INDICATORS. Figure 3.60 shows the default values indicator control key (INDCKEY) 3010, where the right-hand side shows the characteristic control indicators. After you've made necessary settings here, another pop-up appears that allows you to incorporate more default values for the characteristic. You assign this indicator control key 3010 while creating a characteristic.

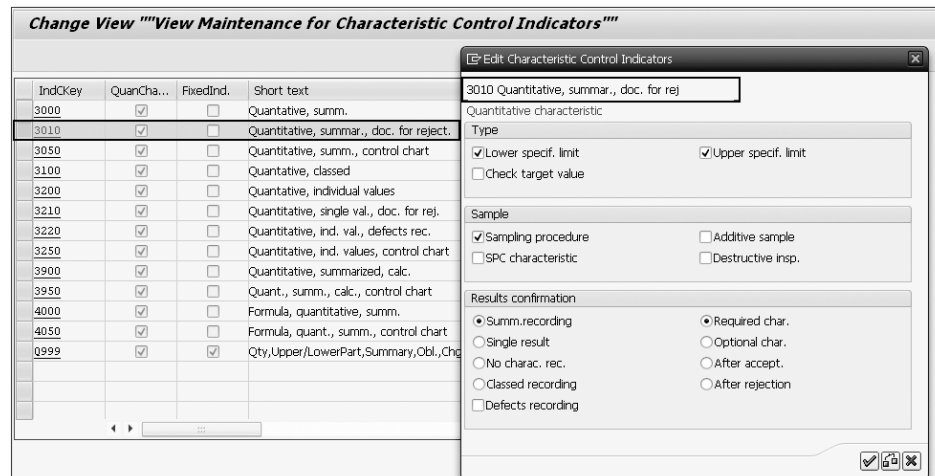


Figure 3.60 Control Indicators

Define Characteristic Weighing

The system uses the characteristic weighing to calculate quality scores. A characteristic with a critical defect will have a higher weight factor and will eventually have greater impact on the quality scores calculation. In other words, a critical

defect will lower the quality score of the inspection lot. During results recording, if you record several defects of an inspection lot, then the system multiplies each defect class's score with the weight factor to calculate an overall quality score of the inspection lot.

You can create characteristic weighing together with the weight factor by following the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE CHARACTERISTIC WEIGHING. In Figure 3.61 ①, choose CHAR. WGHT 01, and then ② appears. Checking the NO SKIP ALLOWED checkbox ensures that, on selection of defect CRITICAL CHARACTERISTIC or CHARAC. WEIGHT 01, the system doesn't allow inspection skips in results recording.

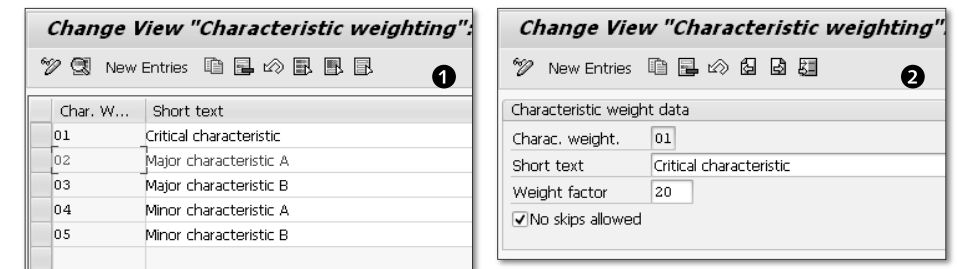


Figure 3.61 Characteristic Weighing

Define Inspector Qualification

An inspector qualification stipulates that a specific person or group requires the necessary qualification to conduct the quality tests. Inspection qualification is for information purposes only. It's not a control function that can stop users from performing a specific action. To define inspector qualification, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE INSPECTOR QUALIFICATION.

Define Tolerance Key

The tolerance key defines the tolerance range for the quantitative characteristic. When the results of an inspection characteristic fall within the "tolerance key/range," it's viewed as acceptable for the purpose of valuating the characteristic.

To create or change a tolerance key, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE TOLERANCE KEY. Figure 3.62 ❶ consists of a long list of industry-standard tolerance keys that you can evaluate before proceeding to create new ones. Choose TOLER. KEY (tolerance key) A10, and then choose DETAILS so that ❷ appears. Here, you can control the number of decimal places, as well as define the unit of measure of the tolerance key. You can also set and copy the TARGET VALUE while creating a characteristic. Choose NOMINAL VALUES in ❷ to go to ❸. In ❸, you can define both upper and lower nominal, specification, and limits, including the number of decimal places for each.

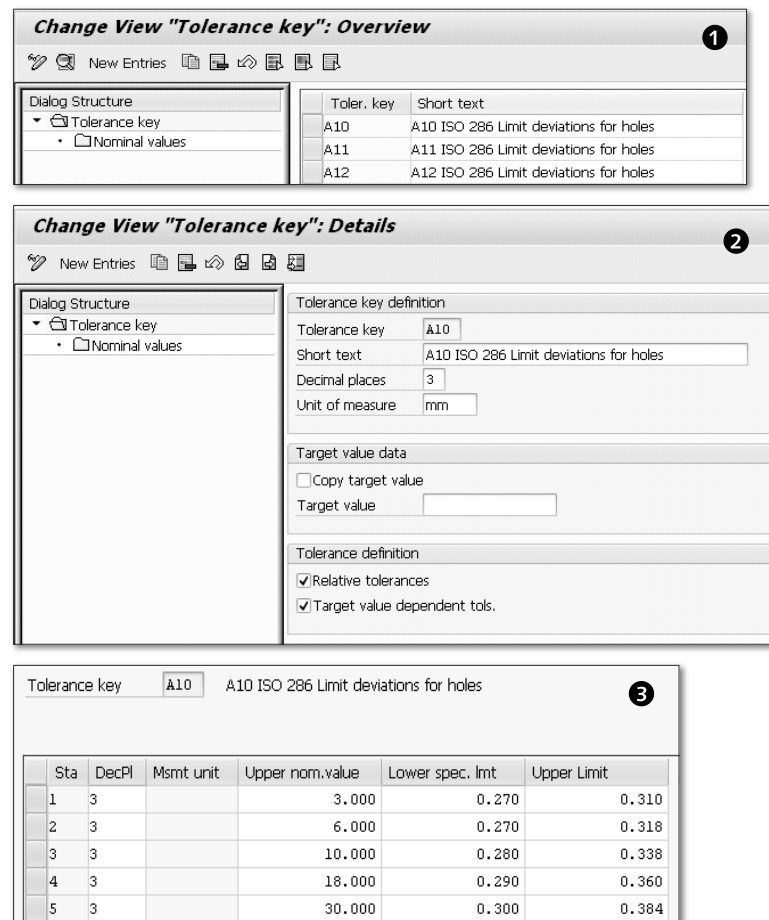


Figure 3.62 Tolerance Key

Define Estimation Procedure for Fraction of Defects

In this step, you can define your own procedure to estimate the percentage of defective material using the characteristic inspection results. The following are the fraction estimates:

- ▶ Nonconforming units (with regard to a characteristic and in the inspection lot)
- ▶ Characteristic values outside of the tolerance range

The keys for the procedure are defined in the inspection characteristic.

The system maintains fraction estimates for the following distributions:

- ▶ **Binomial distribution**
The system uses binomial distribution when there are exactly two mutually exclusive outcomes of a result. The outcome is either a success or a failure.
- ▶ **Poisson distribution**
The Poisson distribution uses the model of number of events occurring within a given time interval.
- ▶ **Normal distribution**
Mean and standard deviations are taken into account in samples' results.

To define an estimation procedure for fraction of defect, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE ESTIMATION PROCEDURE FOR FACTION OF DEFECTS. In the screen that appears, define your own estimation procure and assign the relevant function module.

Number Ranges

You can define your own number ranges for inspection characteristics and inspection methods. To do this, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • INSPECTION CHARACTERISTIC, INSPECTION METHOD • DEFINE NUMBER RANGE.

Figure 3.63 shows the initial screen for NUMBER RANGE FOR INSPECTION CHARACTERISTICS. To add a number range, choose INSERT, and in the pop-up that appears, enter the identification (NO) and then define the number range in FROM NO. TO TO NUMBER. You can have internal and external number assignments. For the external number assignment option, select the EXT checkbox.

No	From No.	To Number	NR Status	Ext
01	00001001	00009999	1002	<input type="checkbox"/>
02	00000001	00001000	0	<input checked="" type="checkbox"/>

Figure 3.63 Number Ranges



Note

The basics of creating and assigning number ranges are the same. Hence, you can use the information in this section to create and assign them in other QM master data set-ups.

Inspection for Goods Movements

If you want to control inspection at procurement or transfer, you need to define it in this configuration step. The SAP ERP system has already defined this for standard movement types. Only if you create a new movement type, then you need to add it here. You also need to make sure the inspection type is assigned to the inspection lot origin. Further, if you want to control automatic creation of inspection lots for any movement types, you can activate/deactivate them.

To make the necessary settings of inspection for goods movements, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT CREATION • INSPECTION FOR GOODS MOVEMENT. In the pop-up that appears, choose UPDATE CONTROL and then enter your custom-defined movement type. Click BACK, and when the pop-up reappears, choose DEACTIVATE QUALITY INSPECTION FOR A MOVEMENT TYPE. This leads to Figure 3.64. Here, you can deactivate the QM function for any movement type(s) by selecting the checkbox QM NOT ACTIVE for the relevant movement type.



Note

In Appendix B, you'll find a list of several movement types and associated inspection origins. You can use that list to integrate QM in as many business processes as necessary to meet your business needs.

M...	S	Movement ind.	Receipt Ind.	Consumpt.	QM not active	Moverr
261		Goods movement w/o referen...	Normal receipt	No consumption	<input type="checkbox"/>	GI for o
261	L	Goods movement for delive...	Normal receipt	No consumption	<input type="checkbox"/>	GI for o
261	E	Goods movement w/o referen...	Normal receipt	No consumption	<input type="checkbox"/>	GI for o
261	E	Goods movement w/o referen...	Normal receipt	E Sales order	<input type="checkbox"/>	GI for o

Figure 3.64 Deactivating QM for a Movement Type

This section covers sample and SPC. Let's review sample configuration next.

Adapt Rules for Sample Determination

If the standard sampling procedure doesn't fulfill your company's business needs, then you can assign additional or different rules by assigning a specific function module to the sample determination rule. Use the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • SAMPLE, SPC • DEFINE SAMPLING DETERMINATION • ADAPT RULES FOR SAMPLE DETERMINATION.

Define Valuation Mode

Valuation mode enables the system to value inspection characteristics based on whether the mode of valuation will be manual or automatic and is for attributive (qualitative) or variable (quantitative) characteristic. When you're creating a sampling procedure, you need to choose the relevant valuation mode that's directly linked to the valuation rule. Let's explain this with an example.

Consider valuation mode 110 (Attr. Insp. Nonconforming units/manual), which contains valuation rule 11 (Attr. insp. nonconforming units/manual). The combination of valuation mode 110 and valuation rule 11 means that the system takes the acceptance or rejection decision of an attributive (qualitative) characteristic based on how many of the inspected samples of an inspection characteristic fail—for example, if the total number of samples inspected is 20 units, and you record three units as rejected due to defects or nonconformance. Whether that characteristic actually passes or fails depends on the formula used in for valuation rule 11 or the function module QEBR_NONCONFORM_UNIT_OR_MANUAL. You've

defined the actual number of samples allowed for pass or fail in the sampling procedure. In this specific case, while the system automatically values the characteristic as either accepted or rejected, the system provides an option for the user to manually value or overrule the automatic valuation. This option of manual valuation (despite the system's automatic valuation) isn't available if you use a valuation rule 10.

To summarize, a few valuation modes are valuation by number of defects, number of non-conforming units, or defect code, and they are for attributive or variable characteristics with the option of automatic, manual, or both valuation controls of an inspection characteristic.

[+] Tips & Tricks

If the characteristic is quantitative, then choose a valuation mode in the sampling procedure as one of the "variable" types.

If the characteristic is qualitative, then choose a valuation mode in the sampling procedure as one of the "attribute" types.

To navigate to the valuation mode, use the menu path **SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • SAMPLE, SPC • DEFINE SAMPLING DETERMINATION**. In the pop-up that appears, choose **DEFINE VALUATION MODE**, and then from the list of various valuation modes available, choose **VALUATION MODE 100**.

You'll see a screen that shows the **VALUATION MODE 100** for attributive (qualitative) inspection by number of nonconforming (or number of defects) unit, and have valuation rule 10 assigned to valuation mode 100.

Define Valuation Rule

To set up or navigate to a valuation rule, follow the menu path **SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • SAMPLE, SPC • DEFINE SAMPLING DETERMINATION**. In the pop-up that appears, choose **MODIFY VALUATION RULE**, and then from the list of various available valuation modes, choose **VALUATION RULE 10**. This leads to Figure 3.65, wherein the system uses the function module to value a characteristic. If you have any unique business need to value a characteristic that's not available in the standard system offering, then you can create a function module and assign it in this step.

Figure 3.65 Valuation Rules

Statistical Process Control (SPC)

Organizations use Statistical Process Control (SPC) as a tool to improve product quality by reducing process variations. There are two sources of process variation. These are the following:

- ▶ Chance variation that is inherent in the process, stable over time, and assignable
- ▶ Uncontrolled variation, which is unstable over time—the result of specific events outside the system

These variations were later renamed: chance variation as common cause variation, and uncontrolled variation as special cause variation.

Control charts attempt to distinguish between two types of process variation:

- ▶ Common cause variation, which is intrinsic to the process and will always be present
- ▶ Special cause variation, which stems from external sources, indicates that the process is out of statistical control, and needs evaluation on a case-by-case basis

When you create an inspection characteristic, you select the SPC checkbox to let the system know that you'll be monitoring this specific characteristic through the SPC process. Also, remember to simultaneously select the SAMPLING PROCEDURE checkbox; otherwise, the system deactivates the SPC checkbox that you previously selected. Later, when you assign this SPC characteristic to an inspection plan, the system prompts you to enter the sampling procedure, as well as the SPC criterion.

To navigate to the SPC criteria settings, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • SAMPLE, SPC • STATISTICAL PROCESS CONTROL • DEFINE SPC CRITERIA. In Figure 3.66 ❶, you'll find several combinations of task list characteristics that align with material, vendor, customer, and even equipment or the functional location of the PM component. Choose SPC CRIT. 10 in ❶, and ❷ appears.

The USAGE is the option to select a specific task list to use the SPC criterion. Additionally, the radio buttons enable selection of the assignment of the control chart either on every inspection lot or at every inspection point.

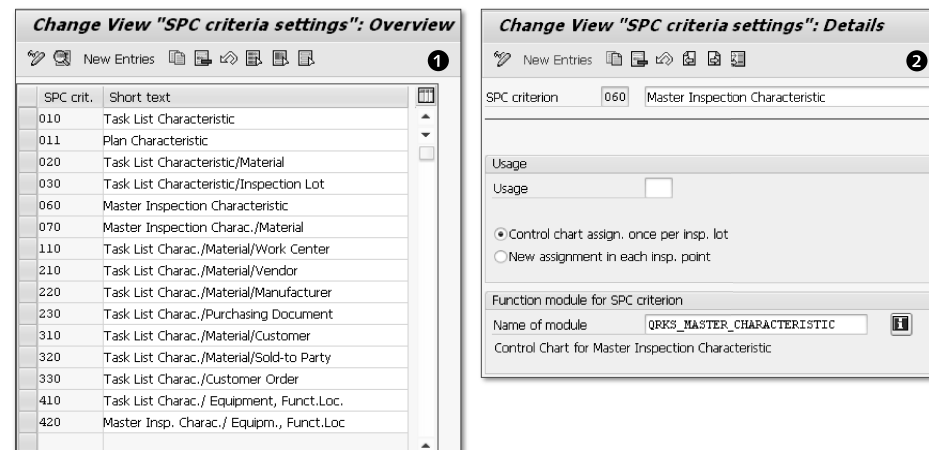


Figure 3.66 SPC Criteria



Note

Refer to Chapter 19 on quality control to see how to leverage SPC to improve your business processes.

Define Control Chart Type

Control charts are most commonly used in the production area. Your system comes with a number of preset sampling procedures for SPC inspection planning. To define your own SPC sampling procedure in the SAP ERP system, proceed in exactly the same way as you would for the lot inspection. The sampling procedure input mask contains one extra attribute: the indicator for the inspection point. The inspection point control object allows you to set the inspection interval, that is, whether the inspection is to be container-based, time interval-based, or event-based.

Define the following first:

- ▶ **Sample type**
Only a fixed sample is allowed.
- ▶ **Valuation mode**
Select the special valuation mode, SPC inspection. With this setting, valuations of samples or characteristics use the action limits of the quality control chart. A rejection occurs if the action limits are violated. If there are not yet enough measurement values to calculate an action limit, the procedure switches to manual calculation until the measured values are sufficient.
- ▶ **Control chart type**
You have to assign a control chart type for SPC sampling procedures. When you do so, the system checks whether the sampling procedure will use inspection points or independent multiple samples. With independent multiple samples, control chart types with samples are allowed; otherwise, control chart types without samples are allowed.

In control charts with a memory (moving average chart, mean-value chart, or moving-range chart), the control variable is not restricted to the current sample. These control chart tracks don't support the *SPC inspection* valuation mode.

When defining the *sample size*, there are some quality aspects that you have to take into account. If you want to use the sample size $n = 1$, you should ensure the following:

- ▶ That there is no S track in the control chart you intend to use.
- ▶ That the overall dispersion, and not the internal dispersion, is used to calculate the process dispersion in the calculations for the action limits. The reason for this is that in samples with the size $n = 1$, the standard deviation is always 0.

[+] Tips & Tricks

In SPC inspections with measured recording, sample sizes from three to 10 are normal. $n = 5$ is the most commonly used value.

For quantitative characteristics whose original values don't have a normal distribution, you can select a larger sample size to use the central specification limit set of the statistics, whereby the distribution of the mean values is almost normal. You can then use Shewhart charts for the mean value, even if the distribution of the population is not normal. The more the distribution deviates from the norm, the greater the sample size should be.

The SPC criteria determine the update process for the control chart and are controlled by function modules. Before the system creates a new control chart (during results recording), this function component checks whether a suitable chart already exists. The function modules are well documented and can be easily adapted to suit your own needs. It's also a simple matter to create a control chart for a characteristic or vendor only.

The standard already contains the following function modules:

- ▶ QRKS_CHARACTERISTIC: Control chart for characteristic
- ▶ QRKS_INSPECTION_LOT: Control chart for characteristic or inspection lot
- ▶ QRKS_MATERIAL: Control chart for characteristic or material
- ▶ QRKS_MATERIAL_CUSTOMER: Control chart for characteristic, material, or customer
- ▶ QRKS_MATERIAL_MANUFACTURER: Control chart for characteristic, material, or manufacturer
- ▶ QRKS_MATERIAL_SOLD_TO_PARTY: Control chart for characteristic, material, or sold-to party
- ▶ QRKS_MATERIAL_VENDOR: Control chart for characteristic, material, or vendor
- ▶ QRKS_MATERIAL_WORK_CENTER: Control chart for characteristic, material, or work center
- ▶ QRKS_PURCHASING_DOCUMENT: Control chart for characteristic or purchasing document
- ▶ QRKS_SALES_ORDER: Control chart for characteristic or sales order

SPC defines which charts are available, how you process them, and how you assign them to the processes.

To define or make changes to the control settings of a control chart, follow the menu path **SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • BASIC DATA • SAMPLE, SPC • STATISTICAL PROCESS CONTROL • DEFINE CONTROL CHART TYPE**.

Choose chart type (CHT) 110 and then choose DETAILS in Figure 3.67, and Figure 3.68 appears.

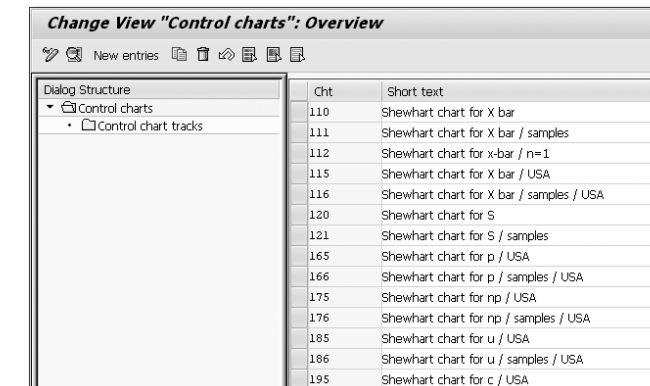


Figure 3.67 Control Chart Overview

Figure 3.68 is the CONTROL CHART TYPE 110 and is the SHEWHART CHART FOR X BAR. Here, you can control when the system actually creates a new control chart. Choose **SIMULATE**, and the system displays the appropriate chart in the lower half of the screen.

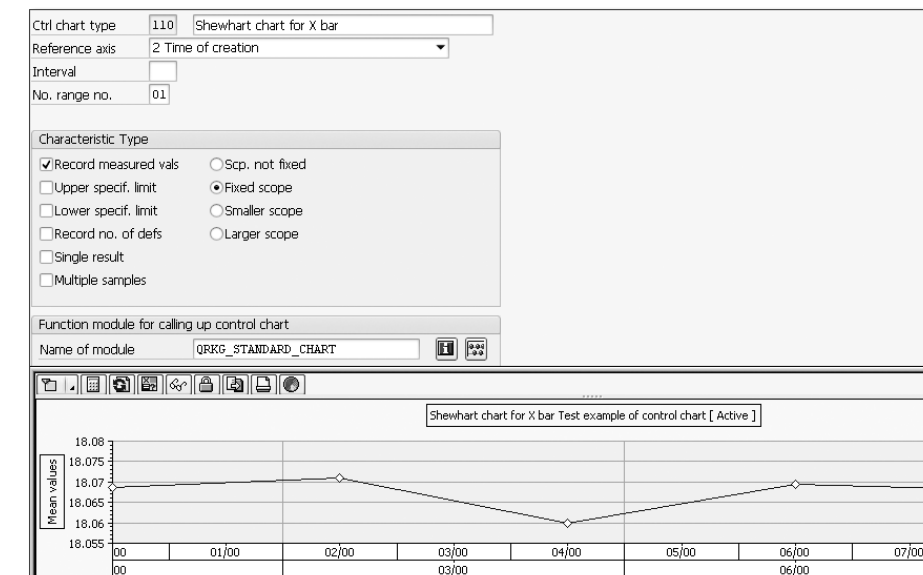


Figure 3.68 Control Chart: Detailed Settings

Referring again to Figure 3.67, this time choose CONTROL CHART TRACKS on the left-hand side, and this leads to Figure 3.69. This screen shows the system-suggested upper and lower warning and action limits for numeric parameters. You can choose to optionally or always display these limits in the control chart. The system calculates and displays all limits, but choosing the checkbox CHANGE CONTROL LIMITS (partially visible in Figure 3.69), you can also manually enter the control limits, and the system clearly identifies them, too.

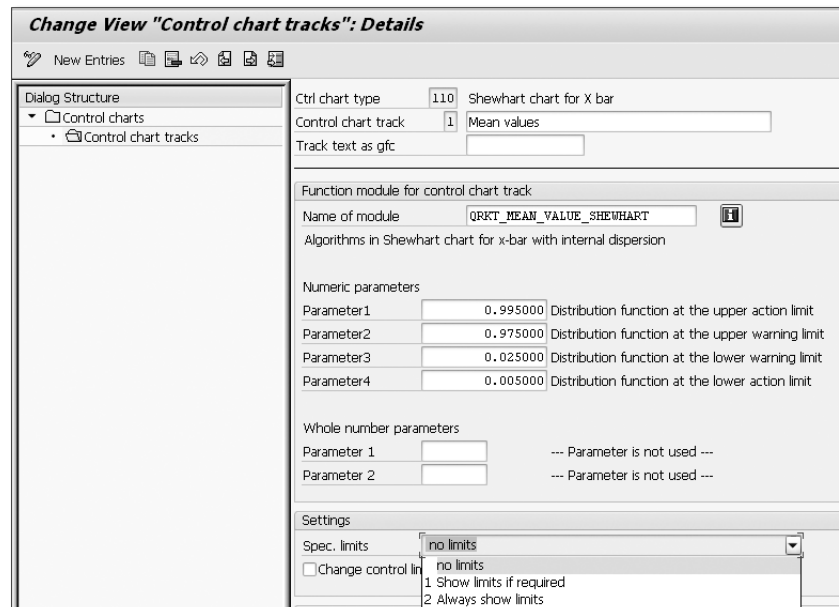


Figure 3.69 Control Chart Tracks

After basic data is set up, you need to set up inspection planning data. Inspection planning consists of two sub-components: general (applies for all operations) and operation specific. Quality inspection uses task list type Q. Quality inspection integrates with production-related task list types, such as routings, rate routings, and master recipes, or a reference operation set can also be used.

Assign Task List Types to Material Types

The SAP ERP system has many standard material types that already form the combination with task-list-inspection type Q. However, if you've created any new material type that will have quality implications, then you need to ensure that the

necessary configuration is in place; otherwise, the system prevents you from creating the inspection plan (task list type Q—inspection plan).

To assign task list types to material types, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL • ASSIGN TASK LIST TYPES TO MATERIAL TYPES. In the screen that appears, choose MAINTAIN PARAMETERS FOR TASK LIST TYPE, and this leads to Figure 3.70. In Figure 3.70, check the task list type (TLTy...) "Q" and material type (MTP) combination.

TLTy...	Description	MTyp	Material type description
Q	Inspection Plan	FERT	Finished product
Q	Inspection Plan	HALB	Semi-finished product
Q	Inspection Plan	HAWA	Trading goods

Figure 3.70 Assignment of Material Type to Task List Type

Planner Group

Planner groups are used to group activities, typically in plant maintenance, production planning, or supply planning processes. In QM, you configure and assign planner groups in task lists. Planner groups eventually help in reporting, when you want to see task list(s) of specific planner groups.

To create a planner group, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL • DEFINE PLANNER GROUP.

Define Identifier for Inspection Points

You can define an identifier for inspection points for physical samples, partial lots in production, and maintenance objects (such as equipment or functional locations). A configured identifier for the inspection point then needs to be filled with relevant information before you can record the results of an inspection lot or an inspection point.

To create or change the identifier for an inspection point, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • GENERAL • DEFINE IDENTIFIER FOR INSPECTION POINTS.

Figure 3.71 is the FIELD COMBINATION 300 and is the inspection point (INSPPT) TYPE 1, which is for INSPECTION POINT FOR EQUIPMENT. The right-hand side drop-down shows the various available inspection point types.

The screenshot shows the SAP configuration interface for 'Inspection point/user field combination'. The main window title is 'Change View "Inspection point/user field combination": Details'. It features several tabs: 'Fields', 'Valuation', and 'Function modules'. The 'Fields' tab is selected, displaying a table of predefined and user fields. A dropdown menu for 'Insp. point type' is open, showing three options: 1 (Inspection point for equipment), 2 (Inspection point for funct. location), and 3 (Inspection point for phys. sample). The 'Valuation' tab is also visible, showing a table with 'Field act.' and 'Keyword' columns. The 'Function modules' tab is also present. At the bottom, there are checkboxes for 'Last inspected sample is valid' and a field for 'No. insp. points for char. summariz.'.

Figure 3.71 Inspection Point

We'll review each of the three tabs in the following subsections.

Fields Tab

When you're creating an inspection point identifier, it's important to choose INSPPTTYPE to denote the specific use inspection point. The inspection points available are as follows:

- ▶ (blank): Freely-defined inspection point
- ▶ 1: Inspection point for equipment
- ▶ 2: Inspection point for functional location
- ▶ 3: Inspection point for physical sample

You can define up to six user fields with the flexibility to define the user field's text per the business need. For example, a user field can be titled "Shift" and have the field format NUMBER, and the field length is three numeric values. You can

control the display positions of the six user fields by defining the numbering of display order in the option FIELD ACT. If the SHIFT field must be displayed for data entry at position number 2 then you need to number the FIELD ACT. "2."

If you select the LAST INSPECTED SAMPLE IS VALUATED checkbox, the results for the last inspected inspection point are valid. All characteristic results for previous inspection points are automatically set to invalid. Only the results for the last inspection point are considered for summarization at the summarized characteristic level.

Tips & Tricks

You should set this indicator if samples should be drawn (and inspection points created) until the target value is reached.

Valuation Tab

In this tab, you can set the default options for valuating inspection points and assigning codes and code groups to facilitate the data entry efforts during results recording.

Function Modules Tab

You can either use the preset or predefined function modules or assign your own custom-defined function module. Alternatively, you can simply deactivate this by deselecting the USE FUNC COMPONENT checkbox.

Inspection-Characteristic Origin

You can define a unique identifier to denote the origin of inspection characteristics so that when you use them in an inspection plan, you know the origin of the characteristic. For example, in Chapter 22 on FMEA and control plan, you copy an inspection characteristic undergoing the FMEA process into an inspection plan. When you do this, the system asks you for the characteristic's origin and brings up the list that you define in this configuration step.

To create or change an inspection-characteristic origin, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • INSPECTION PLANNING • OPERATION • INSPECTION CHARACTERISTIC • DEFINE INSPECTION-CHARACTERISTIC ORIGIN. In the resulting screen, you can define a numeric origin, together with the description of inspection-characteristic origin.

Engineering Workbench

An Engineering Workbench facilitates the modification or updating of a large number of QM master data and associated objects to save time and reduce the chances of data entry error. You can either create a new working area or modify the existing ones to meet your business needs. A working area makes available all the different fields and options that you will use while using Engineering Workbench.

To access Engineering Workbench, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • ENGINEERING WORKBENCH • DEFINE WORK AREAS. Choose work area Q_OPR_00000000010, and this leads to Figure 3.72. You can select various radio buttons and checkboxes to ensure that the system displays only the relevant information during actual working in Engineering Workbench. You can also set LOCK at the relevant level (header or operation) to prevent anyone from making changes in the inspection plan while another user is working in Engineering Workbench. Notice that you can activate CLASSIFICATION (refer to Chapter 13) and see the classes and their associated characteristics. The OBJECT DEPENDENCIES find greater usage when you're using variant configuration functionality, or even with advanced classification functionality.

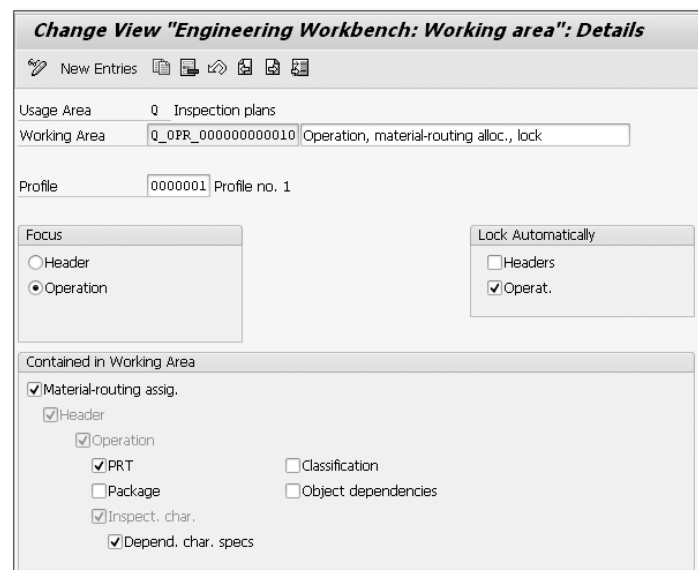


Figure 3.72 Engineering Workbench: Details

When you complete an inspection lot after the completion of physical inspection, you may or may not make the usage decision. You're determining the quality valuation and updating the quality level. If you have links to a batch class, you can transfer inspection results to batch specifications. Based on the usage decision, the system can perform follow-up actions.

Note that short-term and long-term inspection completion are two separate steps. For short-term inspection, you need to enter the results before making the usage decision. For long-term inspection, you can enter the results even after the usage decision has been made for an inspection lot.

3.4.4 Quality Inspection

You can set up catalogs for usage decisions based on your business needs. Catalog type 3 is for usage decision. To implement any usage decisions, you need to first implement quality score procedure, follow-up actions, and inventory postings. This section covers these configuration steps.

Define Quality Score Procedure

You can set a default value for determining a quality score in the inspection type. To do this, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT COMPLETION • DEFINE QUALITY SCORE PROCEDURE.

Figure 3.73 ❶ shows the available standard options. Chose QUALITY SCORE PROCEDURE 01 in ❶, and it leads ❷. Notice that a function module is assigned to undertake the necessary calculation for the quality score procedure. The checkbox PERMITTED SHARE OF SCRAP enables a certain percentage of defects to be considered during quality scores calculation. The field RELEVANT INSP. CHARS provides an option to define whether the results of MICs are considered for quality score calculation, especially if the MICs are closed and valued.

To define follow-up action, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT COMPLETION • DEFINE FOLLOW-UP ACTIONS. In the pop-up that appears, choose FOLLOW-UP ACTIONS, and it leads to Figure 3.74.

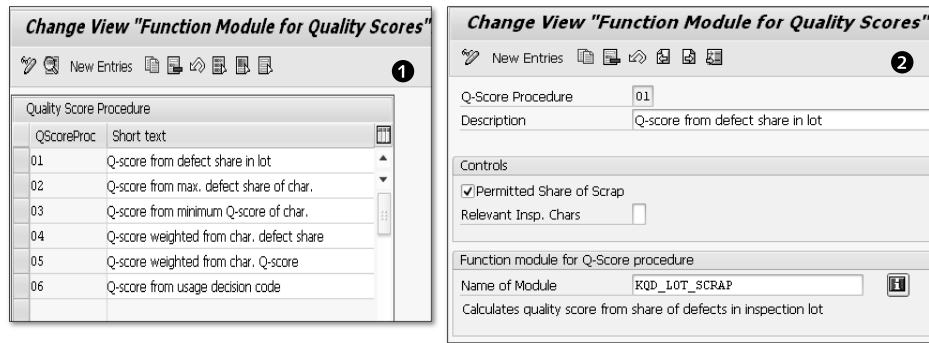


Figure 3.73 Quality Scores

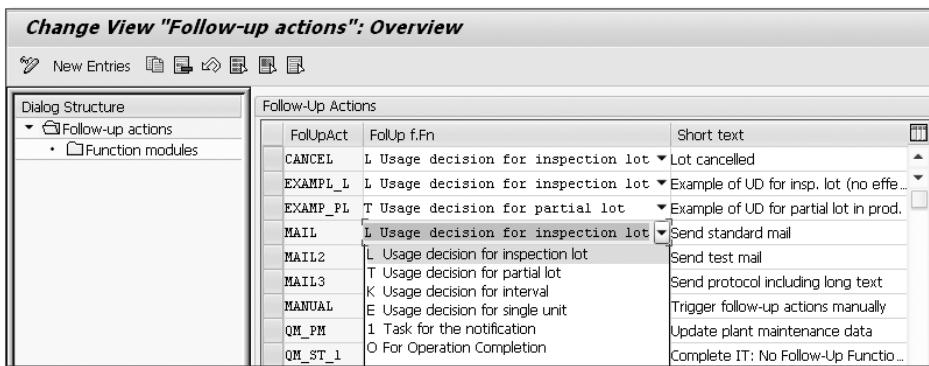


Figure 3.74 Function Component for Follow-Up Actions

Here, you see several standard follow-up actions available at various stages of quality inspection completion, especially at the UD level. Available options for follow-up actions include the cancellation of the inspection lot when the UD is rejected and sending standard email to SAP users in SAP mailbox, among others.

Define Inventory Postings

As you know, while performing UD, you need to perform two sets of activities. These are as follows:

- ▶ Assign UD code, based on which the system calculates quality scores
- ▶ Actual posting of inspection stock (for stock-based inspection)

The menu path to define inventory posting is SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • INSPECTION LOT COMPLETION • DEFINE INVENTORY POSTINGS. In Figure 3.75, notice the relevant movement types that are already assigned to each of the inventory posting. For example, in case of transfer posting a quality stock to scrap, the movement type that transfers the Q stock (quality stock) TO SCRAP is 553.

We recommend that you keep the standard settings unless you've created your own movement type to cater to a unique business need, and which you can assign in this configuration step.

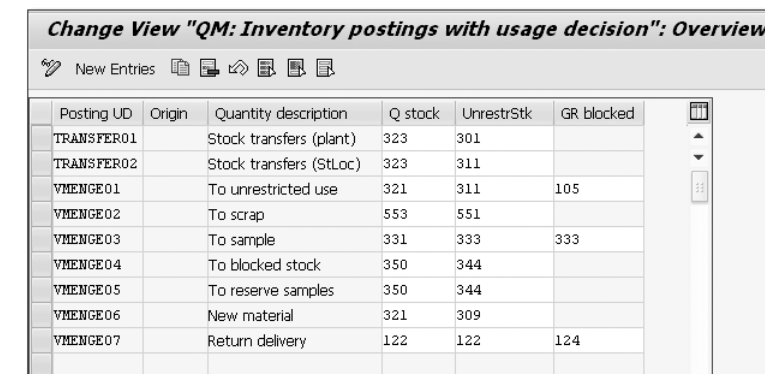


Figure 3.75 Inventory Postings with Usage Decision

The following section covers configuration details of results recording.

Define Recording Configuration

During results recording, various options are available to facilitate the data entry process, as well as determine whether you can automate some of the tasks.

To make the necessary settings of results recording, use the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • RESULTS RECORDING • DEFINE RECORDING CONFIGURATION. In the change view RECORDING CONFIGURATION OVERVIEW, choose recording option 1, and it leads to Figure 3.76. Table 3.9 explains the fields of Figure 3.76.

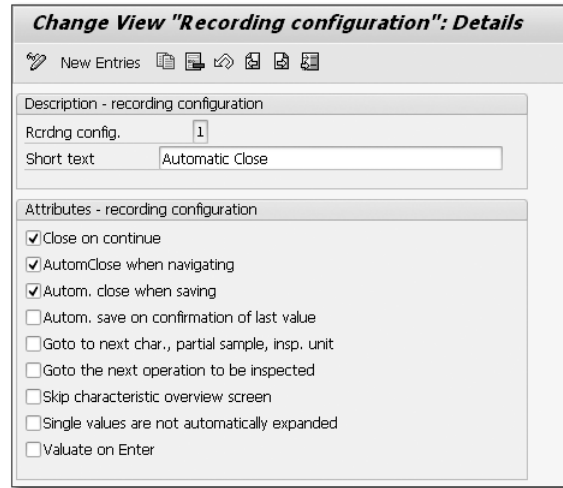


Figure 3.76 Recording Configuration

Checkbox	Function
CLOSE ON CONTINUE	It closes the characteristic (MIC) for further data input when you click CONTINUE (press <input type="button" value="Enter"/>).
AUTOMCLOSE WHEN NAVIGATING	It closes the MICs when the user navigates to a different screen during results recording.
AUTOM. CLOSE WHEN SAVING	It closes the MICs when the user saves the results after results recording.
AUTOM. SAVE ON CONFIRMATION OF LAST VALUE	When the user enters the last value of the MIC, the system automatically saves the results and exits.
GOTO TO NEXT CHAR., PARTIAL SAMPLE, INSP. UNIT	This automatically navigates to the next MIC, partial sample, or inspection point when there are multiple input values.
GOTO THE NEXT OPERATION TO BE INSPECTED	If there are multiple operations during the inspection, then the system moves to the next operation once the results for the preceding operations are entered or valuated.
SKIP CHARACTERISTIC OVERVIEW SCREEN	This option doesn't navigate to the MIC results recording overview once all results are entered. Rather, it prompts you to save the results and exit the results recording screen.

Table 3.9 Results Recording Configuration

Checkbox	Function
SINGLE VALUES ARE NOT AUTOMATICALLY EXPANDED	Additional, single result lines don't appear automatically on the GENERAL characteristic overview screen.
VALUATE ON ENTER	Although there is an option to manually choose VALUATE during results recording, you can automate this step by selecting this checkbox. Once the system checks whether the entered value (result) is within or outside the pre-defined range of values (specifications), it valuates the result for acceptance or rejection.

Table 3.9 Results Recording Configuration (Cont.)

Define Origins of Results Data

Data origin is an identification of the source of data. In the standard SAP ERP system, three options are available to choose from. These are electronic certificate from the vendor, test equipment results, and manual data entry.

To define the source or origin of inspection results data, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • RESULTS RECORDING • DEFINE ORIGIN OF RESULTS DATA.

Define Parameters for Calculated Characteristics

In this step, you can define the formula parameters for the input values of calculated characteristics. You can achieve this in the following two ways:

- ▶ The formula parameters directly reference the fields in the input characteristics.
- ▶ The formula parameters reference function modules, which calculate the values in the fields of the input characteristics.

For example, to determine the difference between the mean values of two characteristics or samples, you need mean values for either characteristics or samples as input values. Since these mean values are available in the characteristic record, you can give reference to the corresponding fields in the input characteristics. But to determine how many values for a quantitative characteristic are above a target

value, you need a special function module that calculates this using a counting function.

To define a parameter for a calculated characteristic, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • RESULTS RECORDING • DEFINE PARAMETERS FOR CALCULATED CHARACTERISTICS. In the pop-up that appears, choose DEFINE PARAMETERS FOR CALCULATED CHARACTERISTIC, and it leads to Figure 3.77 ①. A long list of standard parameters is available, and this is generally sufficient to cater to different business needs. Choose parameter C0, and it leads to ②. In ②, the parameter C0 is basically the FIELD NAME C0 in the respective table, and it's the mean value of the measured value of a characteristic. Notice the option to incorporate FUNCTION MODULE to cater to any specific business need.

Next, choose ASSIGN FIELD NAMES TO PARAMETERS/FIELDS in the pop-up that appeared previously and choose parameter C0 again, so that ③ appears. The TABLE NAME and FIELD: DB FIELD in ③ show the database table where the system stores information that pertains to FIELD NAME C0, which you can retrieve through several data table reading and retrieval options.

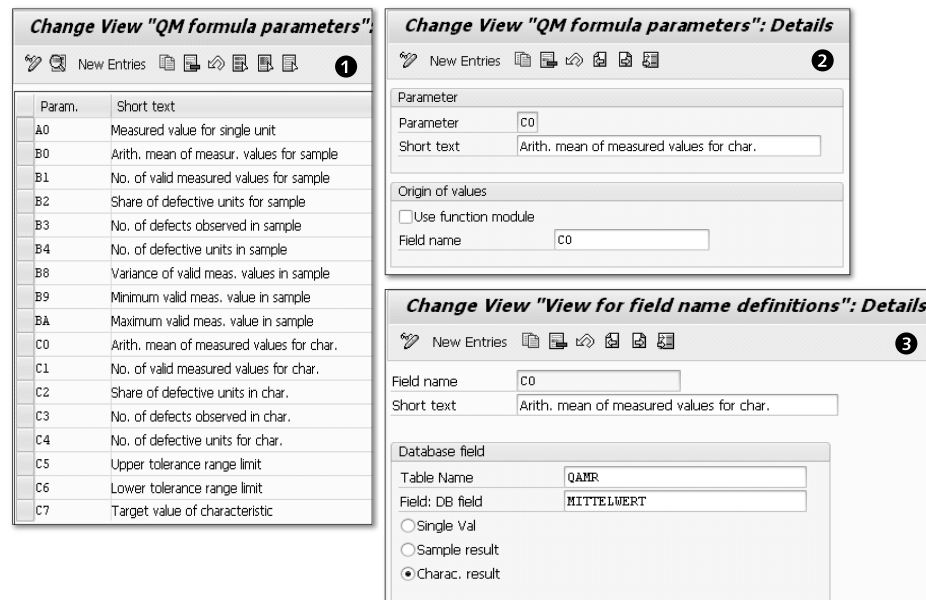


Figure 3.77 QM Formula Parameters

Note
Refer to Chapter 18 on reporting, which also covers the data table reading and retrieval options.

«

Define Filter for Inspection Characteristics

Before covering the configuration settings for the filters, use Transaction QE01 (results recording), choose the dropdown CHAR. FILTER field, and take a quick look at the different available filters. You can configure these filter settings so that the system displays only the information per your pre-set filter. Since Transaction QE01 is just one of the several variants of characteristics' records recording, you use other transactions for results recording, for which you can see the necessary filters. Section 3.1.2 covers variants of results recording.

To set up a filter for inspection characteristic, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • RESULTS RECORDING • DEFINE FILTER FOR INSPECTION CHARACTERISTICS. On the initial screen that appears, choose TRANSACTION QA11 and CHAR. FILTER 0, and Figure 3.78 appears. Figure 3.78 contains checkboxes to control the combination of characteristics for display during results recording.

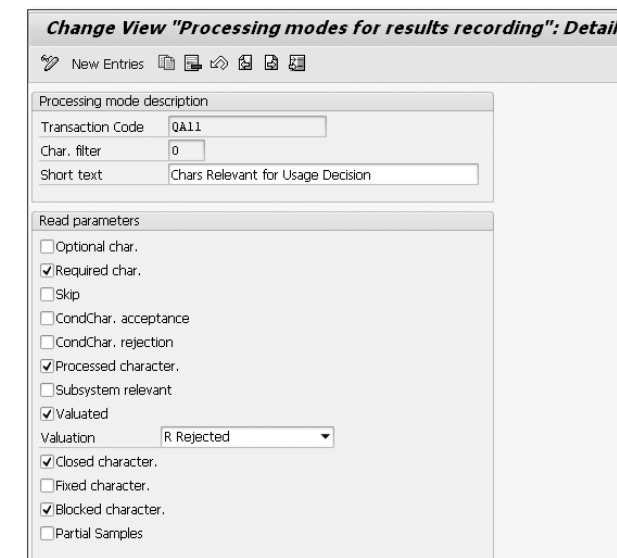


Figure 3.78 Results Recording: Processing Modes

Make Settings for Operation Completion

In this configuration, you control the combination of inspection type and plant that allows operation completion of an inspection lot.

For necessary settings of operation completion, follow the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY INSPECTION • RESULTS RECORDING • MAKE SETTINGS FOR OPERATION COMPLETION. In Figure 3.79, you can make specific settings, for example, for INSPECTION TYPE 09 for recurring inspections with plant selection. Further, you can also limit the option for the user to choose UD codes from the specific selected set, as well as a specific plant for the UD selected set. Finally, selecting the PLANT checkbox checks to ensure that the UD codes for the selected set corresponds to that specific plant only.

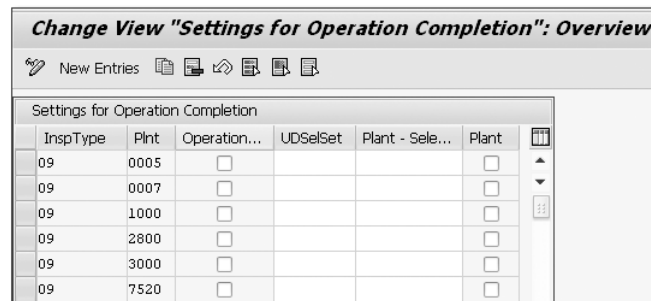


Figure 3.79 Settings for Operation Completion

Fields Selection

You can control the fields in the SAP ERP system for which entry is mandatory, optional, an input option, or hidden from display. For example, during the inspection plan creation, if you want the user to enter information in a specific field, you can select the REQ. radio button. You can also control how the system prompts the user to perform any dependent function when the user enters information in one field. This option works when one modifiable field relates to the influencing fields. To control input or display of field selection, use the menu path SPRO • SAP REFERENCE IMG • QUALITY MANAGEMENT • QUALITY PLANNING • ENGINEERING WORKBENCH • ENGINEERING WORKBENCH • DEFINE FIELD SELECTION.

For this example, let's look at the task list header. In the pop-up that appears, choose PP/PI/QM TASK LISTS: HEADER SCREEN, and Figure 3.80 appears. In Figure

3.80, notice the different available fields. You can change the necessary parameters, such as input only, required, and optional. Notice that you have five options available in the modifiable fields:

- ▶ INPUT
The entry in this field is optional.
- ▶ REQ. (required)
The entry in this field is mandatory.
- ▶ DISP. (display)
There is no entry because it's available for display only.
- ▶ HIDE
The system hides this field, so it isn't displayed.
- ▶ HIL1 (highlight)
Any specific field can be highlighted if you want the user to pay attention. For example, when marking a field entry as REQ., you can also select the checkbox HIL1 to enable the user to quickly see the fields requiring entries.



Figure 3.80 Field Selection for PP/PI/QM Task List: Header Screens



Note

Screen fields and groups are found in several other sub-menus of the QM component, but the basics covered in the section remain the same.

3.5 Summary

Quality inspection entails following a series of business processes that record complete inspection results, record defects, and make usage decisions that may or may not include stock posting. When these business processes begin to mature and stabilize, you can optimize some or all of them by automating them to reduce or eliminate redundant data entry. Multiple specifications functionality offers far greater flexibility in adapting to specific business needs of companies and span beyond a material's customer or vendor assignment.

The next chapter covers integrating QM with Materials Management and is the beginning of Part II, which covers QM integration with Logistics components.

Whether for procurement, production, or sales, it's in a company's larger business interest to maintain and improve quality controls across the entire logistics and supply chain operations.

19 Quality Control

Quality Control involves inspections at all stages, continuous monitoring, and intervening quickly to deal with unexpected events. You can leverage the Quality Control tools to improve and optimize your business processes. In accordance with ISO 9000, Quality Control entails working with techniques and activities that seek to monitor processes and remove the causes of unsatisfactory results. To remove these causes, companies need to undertake corrective and quality-promoting measures that prevent a defects recurrence. The focus of this chapter will be on vendor evaluation, quality level, and Statistical Process Control (SPC).

This chapter begins with the configuration basics that must be in place for you to start using vendor evaluation. Then it covers the master data that you need to set up for vendor evaluation, followed by the business processes and several additional functions that are available. Next, it covers the quality level and how the system keeps updating the information with the passage of time (and with more data input from business processes). Quality level works when the DMR is in place. The last section delves into covering SPC, control charts, and various other quality control tools that are available.

To maintain continuity among various sections of this chapter, the transaction and business data that we use in vendor evaluation business processes eventually leads you to evaluate SPC (through control charts).

19.1 Vendor Evaluation

Vendor evaluation makes it easier for the procurement and quality management functions to pursue their objectives by providing clear and comprehensible key figures. These objectives include the following:

- ▶ Determine the current status of a supply relationship.
- ▶ Show the vendor to what extent the requirements of the purchaser are met.
- ▶ Create a basis for vendor selection or vendor exclusion.
- ▶ Determine support after the request for quotation and to extend the supply relationship.
- ▶ Determine support for higher weighting of the GR inspection and inspection planning.
- ▶ Provide background information to conclude a quality assurance agreement.

In vendor evaluation, you use main criteria and subcriteria to establish key figures that allow an evaluation of individual criteria and the creation of a ranking with an overall score. Based on these key figures, you can initiate corrective measures and improvements in a targeted and focused way. A meaningful vendor evaluation is not restricted to determining the current status; instead, it forms the starting point for ongoing quality improvements.

The vendor evaluation is an essential element of quality control. The SAP ERP system provides you with flexible tools to evaluate your vendors. All of these tools meet the standards requirements, and you can easily adapt them to meet the business needs of your company. While you'll learn all the important steps involved in vendor evaluation, the focus of this section will remain primarily on quality as one of the criteria that forms an integral part of vendor evaluation.

Vendor evaluation takes an intermediate position between procurement and QM because it incorporates the information and criteria from both a commercial- and quality-related point of view. In the SAP ERP system, you find in the vendor evaluation in MM, as holds true in the majority of cases, that the criteria is evaluated from a commercial point of view, and the vendor evaluation lies in the procurement domain. In addition, the system extracts master and transaction data from MM, such as material, vendor, and purchasing information records. The system

evaluates the vendors at the purchasing organization level. The purchasing organization is assigned to one or more plants.

Note

During an actual SAP ERP system implementation project, both procurement (MM) and quality (QM) teams deliberate and agree on the percentages and weighting that the criteria and subcriteria will influence vendor evaluation.



The vendor evaluation makes it possible to evaluate each vendor by using a quality scores (QS). The QS is a combination of all criteria so that the system can create a hit list (a ranking) of vendors. You can also consider each criterion in isolation. The vendor evaluation is not limited to covering only vendors of materials, but also vendors of services, such as maintenance service, cleaning service, and crafts, and can be evaluated.

In the next section, you'll learn how to configure the criteria and subcriteria, including weighting and percentage to each criterion and sub criterion. Then, you'll maintain the required master data for vendor evaluation, followed by running end-to-end business processes. In the end, you'll see how automatic vendor evaluation continuously updates the QS of vendors.

19.1.1 Configuration Basics

In this section, you'll learn how to make necessary configuration settings that the system eventually uses in vendor evaluation.

Weighting Keys

The weighting key is the basic identification to denote equal, different, or unequal weighting of criteria. A criterion is the benchmark, such as price, quality, or on-time delivery that you use to evaluate a vendor's compliance to the company's business needs.

To navigate to the weighting keys, follow the menu path SPRO • SAP REFERENCE IMG • MATERIALS MANAGEMENT • PURCHASING • VENDOR EVALUATION • DEFINE WEIGHING KEYS. In the screen that appears, weighting key 01 denotes equal weighting, whereas weighting key 02 denotes unequal weighting.

Define Criteria

To evaluate vendors, the system provides five main criteria and additional subcriteria. These are the main criteria:

- ▶ Quality
- ▶ Price
- ▶ Delivery
- ▶ External service provision
- ▶ Service

To navigate to criteria, use the menu path SPRO • SAP REFERENCE IMG • MATERIALS MANAGEMENT • PURCHASING • VENDOR EVALUATION • DEFINE CRITERIA. In Figure 19.1, choose the EVAL. CRIT. (evaluation criteria) QUALITY and then choose SUBCRITERIA on the left-hand side, and it leads to the screen shown in Figure 19.2.

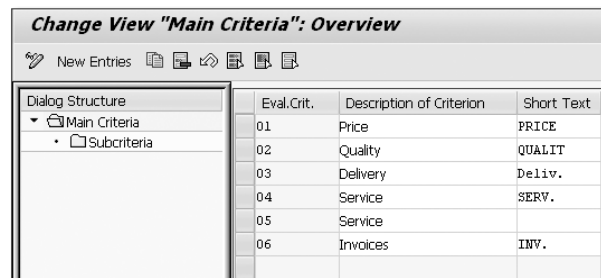


Figure 19.1 Main Criteria: Overview

Figure 19.2 has the main criterion 02 quality with the following subcriteria:

- ▶ **Goods receipt inspection (GR inspection)**
Determination of the QS from the quality of the inspection lot of the individual GRs
- ▶ **Shop floor complaint**
Determination of the QS from complaints against vendors
- ▶ **Audit (quality audit)**
Determination of the QS from one or several audits

Notice the several scoring methods that are available for each subcriteria. Since the focus is on quality aspects of vendor evaluation, scoring methods 7, 8, and 9 apply to GR inspection, shop floor complaints, and audits, respectively. Other

scoring methods apply to quantity reliability, price competitiveness, following shipping instructions, or timeliness of service delivery.

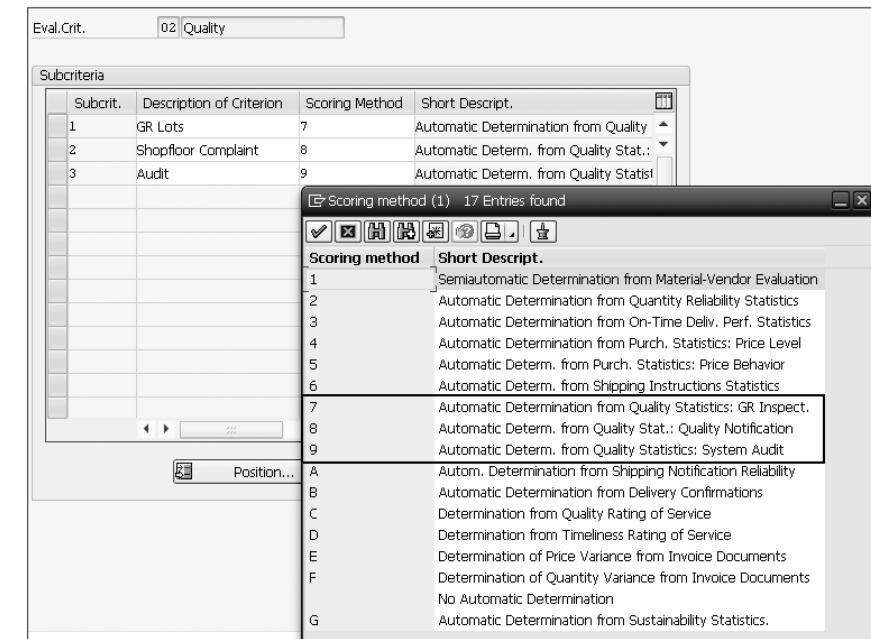


Figure 19.2 Evaluation Subcriteria Quality and Scoring Method

Tips & Tricks

If you don't want to use a specific subcriterion for the criteria QUALITY, then you can simply leave the SCORING METHOD field blank (which means NO AUTOMATIC DETERMINATION; see the dropdown in Figure 19.2).

[+]

Tips & Tricks

You can always amend the standard settings to meet the business needs of your company by adding or removing main criteria or subcriteria as deemed necessary. In total, up to 99 main criteria and 20 subcriteria are possible per main criterion.

[+]

Purchasing Organization Data for Vendor Evaluation

In this step, you maintain the vendor evaluation settings that apply to the entire purchasing organization of the company. To maintain the vendor evaluation data

for the purchasing organization, use menu path SPRO • SAP REFERENCE IMG • MATERIALS MANAGEMENT • PURCHASING • VENDOR EVALUATION • DEFINE PURCHASING ORGANIZATION DATA FOR VENDOR EVALUATION.

Figure 19.3 appears for purchasing organization details for purchasing organization 3000. Here, the best score that a vendor can have is 100. The system divides the entire screen into various areas that apply to different criteria of vendor evaluation.

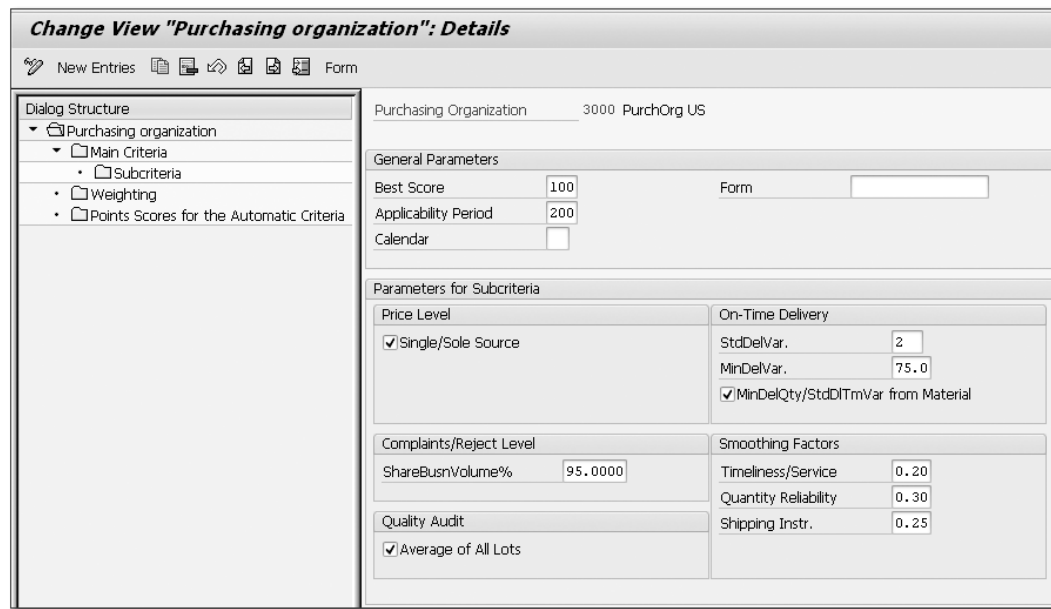


Figure 19.3 Evaluation Criteria for Purchasing Organization

Let's evaluate the parameters that are important from a quality perspective. In the COMPLAINTS/REJECTION LEVEL area, you can control the percentage of a vendor's business volume (SHAREBUSNVOLUME%) that impacts the vendor's quality scores during vendor evaluation. The higher the percentage defined here, the higher the QS of the vendor during vendor evaluation will be; therefore, its overall impact on changing the QS (due to quality notifications' creation) will be low. In the QUALITY AUDIT area, if you select the checkbox AVERAGE OF ALL LOTS, then the system first averages out the QS of all inspection lots and then makes that average part of vendor evaluation. Other parameters on this screen pertain to price and on-time delivery.

Choose MAIN CRITERIA on the left-hand side to see the screen shown in Figure 19.4. Here, you see the four criteria—PRICE, QUALITY, DELIVERY, and SERVICE—that will form part of vendor evaluation for purchasing organization 3000. Selecting the checkbox MANUAL MAINT. (maintenance) enables you to manually maintain the QS of a vendor. This checkbox is also available for subcriteria. This may be necessary in the case of services scenarios, where it's subjective or how well the vendor has fared in providing the requisite services in a timely fashion.

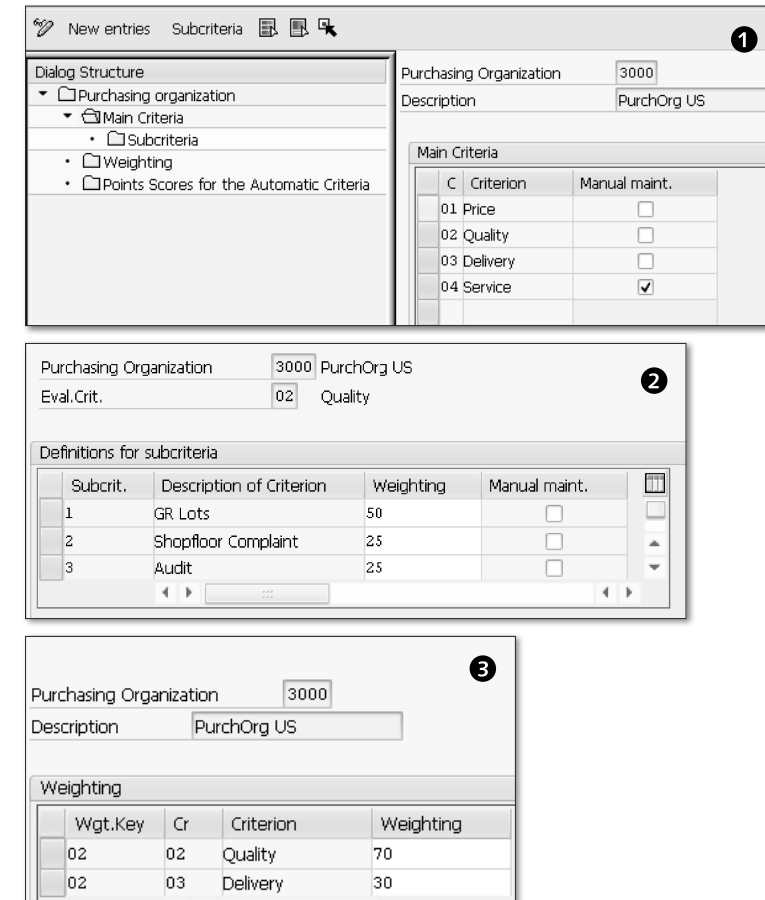


Figure 19.4 Weighting for Subcriteria Quality

Choose QUALITY in ❶, and then choose SUBCRITERIA, so that ❷ appears. In ❷, you can define the weightage of each of the three subcriteria—that is, GR LOTS, SHOP-

FLOOR COMPLAINTS, and AUDIT. In this example, the weightages are 50, 25, and 25, respectively. The screen in ❸ appears when you choose WEIGHTING in ❶, wherein the WEIGHTING KEY is 02 (for unequal weighting), with QUALITY having 70% weightage and DELIVERY having 30%.

[+] Tips & Tricks

Remember that a simultaneous use of subcriteria "Goods Receipt Inspection" and "Shop Floor Complaint" may reduce the QS twice. The negative, or lower, UD score and the quality notifications created influence the vendor evaluation. Therefore, we recommend that you use only one of these subcriteria for vendor evaluation. The specific needs of your company determine which subcriterion is more suitable.

The QS calculation is established bottom-up, which means that you evaluate the subcriteria first. You determine the QS of the corresponding main criterion by combining the subcriteria according to the weighting. Lastly, the system reflects the main criteria in the corresponding weighting in the overall score.

Table 19.1 shows an example of how the system calculates and comes to an overall score after automatic vendor evaluation. The columns ❶, ❷, ❸, and ❹ are the ones that you just configured in the system. Column ❺ denotes the QS that comes from business processes such as usage decision, on-time delivery, or price competitiveness. Column ❻ shows how the system first calculates and subtotals ❼ the subcriteria before moving up to calculate individual criteria's total ❽ and then adding up the criteria's total to come up with the overall QS ❾.

[>>] Note

Refer to Figure 19.10 to see how these numbers stack up in the SAP ERP system through automatic vendor evaluation, and you can achieve the overall QS of 85.0, as shown in ❾ in Table 19.1.

[!] Warning

The objective of this chapter is to show you maximum business scenarios where quality, as a criterion, influences the vendor evaluation. In reality, don't select too many main criteria and subcriteria! A small number of criteria will increase the level of acceptance and comprehensibility. Start with a simple approach; that is, use only the criterion "Quality" with the subcriterion "GR Inspection," and the UD as the basis of the QS.

Crit. ❶	Criteria Weight (%) ❷	Subcrit. ❸	Subcrit. Weight (%) ❹	QS from Business Processes ❺	Subcrit. Scores' Calc. ❻	Criteria Calc. ❽
Delivery	30			100		$0.3 * 100 = 30.0$
Quality	70	GR Lots	50	73	$0.5 * 73 = 36.5$	
		Shop floor complaints	25	97	$0.25 * 88 = 24.25$	
		Audits	25	72	$0.25 * 72 = 18$	
				Subtotal QS ❼	$36.5 + 24.25 + 18 = 78.75$	$0.7 * 78.75 = 55.0$
					Total QScores ❾	$30 + 55 = 85$

Table 19.1 QS Calculation

In real-life situations, it becomes apparent that the calculation of an overall score for the main criterion isn't critical. Although this particular calculation does allow for a ranking (hit list) of the vendors, it raises the question of the need for a negative rating, which, in turn, prompts you to ask which main or subcriteria led to the negative valuation. In our daily work and our need to constantly improve the quality of our work, the monitoring of subcriteria is of far greater business value.

Let's now delve into the master data needed for vendor evaluation.

19.1.2 Master Data Maintenance

You need to ensure that the following MM and QM master data exist in the system so that you can eventually ensure the necessary business processes:

- ▶ Vendor master record (Transaction XK01)
- ▶ Material master record (MM01)
- ▶ Purchasing info record (ME11)
- ▶ Inspection type 01 active in the material master

- ▶ Inspection plan for material
- ▶ Maintain vendor evaluation (we'll cover this next)

For this example, use material 2893, vendor "Morris", plant 3000, and purchasing organization 3000.

To maintain the weighting key for the vendor evaluation, use Transaction ME61 or follow the menu path LOGISTICS • MATERIALS MANAGEMENT • PURCHASING • MASTER DATA • VENDOR EVALUATION • MAINTAIN. In the initial screen that appears, specify the number of the purchasing organization (3000) and vendor (Morris) for which you want to create a vendor evaluation. This leads to the screen shown in Figure 19.5.

Eval. criterion	Score	Weighting
<input type="checkbox"/> 01 Price	0	0.0 %
<input type="checkbox"/> 02 Quality	0	70.0 %
<input type="checkbox"/> 03 Delivery	0	30.0 %
<input type="checkbox"/> 04 Service		0.0 %

Figure 19.5 Maintaining the Weighting Key in Vendor Evaluation

Initially, for a vendor who has not yet been evaluated, the system doesn't populate the fields for the main criteria, indicating that it hasn't determined the QS yet. Enter the weighting key 02 (UNEQUAL WEIGHTING), and save. Notice that when you enter weighting key 02 (UNEQUAL WEIGHTING), the system brings up the numbers in the WEIGHTING column that you just configured.

[+] Tips & Tricks

While you'll use a different transaction for vendor evaluation, you can also navigate to EDIT • AUTO. NEW EVALUATION in Figure 19.5 (not shown). The system recalculates all

subcriteria and all main criteria, as well as the overall score for the current data. After performing the automatic re-evaluation, the system populates the fields for the overall score, as well as the main criteria and subcriteria with the current QS.

Tips & Tricks

You can use Transaction ME6E for vendors whose weighing key isn't maintained yet.

19.1.3 Business Processes

You continue to run your business processes as you normally would, and the system keeps updating the QS. These business processes may entail creating purchase orders, receiving goods, and performing quality functions such as results recording and usage decision. You also record notifications for defective materials received. Further, you conduct and record the results and usage decision of audit inspections in the system as a part of your routine business.

Note

Refer to Chapter 4 to see how QM integrates with MM, including in the procurement process. Chapter 11 covers quality notification, while Chapter 20 has details on audit inspection.

When you do some or all of the above, you can then proceed to vendor evaluation.

19.1.4 Calculate Score

For automatic new evaluation for vendor Morris, use Transaction ME63 or the menu path LOGISTICS • MATERIALS MANAGEMENT • PURCHASING • MASTER DATA • VENDOR EVALUATION • AUTOMATIC NEW EVALUATION. In the screen shown in Figure 19.6 ①, enter vendor Morris and the purchasing organization 3000. Optionally, you can specify that only vendors who haven't been evaluated since a specific date (NOT EVALUATED SINCE...). Choose EXECUTE, ② appears, and the system shows the results of the automatic new evaluation. This log provides a comparison of the scores between the last evaluation and the current evaluation with regard to the overall score, as well as the main criteria and subcriteria.

Calculate Scores for Semi-Automatic and Automatic Subcriteria

General Data

Vendor: MORRIS
 Purchasing Organization: 3000

Further Data

Not Evaluated Since: []

Scores for Semi-Automatic and Automatic Subcriteria

Evaluation Individual log All logs

Purch. org.: 3000 PurchOrg US
 Vendor.....: MORRIS Todd
 Eval. by JAKHTAR On: 09.10.2014

	Old scores	New scores
Overall evaluations:	100	90
01 Price	0	40
01 Price Level	0	40
02 Price history	0	0
03 Market behavior	0	0
02 Quality	100	88
01 GR Lots	100	88
02 Shopfloor Complaint	0	0
03 Audit	0	0
03 Delivery	0	96
01 On-time delivery	0	96
02 Quantity reliability	0	0
03 Shipping instructs.	0	0
04 Notification reliab.	0	0
04 Service	0	0
01 Reliability	0	0
02 Innovation	0	0
03 Flexibility	0	0

Figure 19.6 Vendor Scores Calculation



Note
 The yellow highlight across any QS denotes that it's updated or is the latest QS. If you notice (as in this example) that the columns OLD SCORES and NEW SCORES both have several yellow highlight Qses, this is because you didn't save the results of last automatic vendor evaluation.

For an analysis of the results leading to current vendor evaluation, you can navigate to additional details available here. Choose ALL LOGS, and you receive a listing of the scores per material number that you see in Figure 19.7. Here, you can

see a score of 75 for the MAIN CRITERIA QUALITY and SUBCRITERIA GR LOTS. It also shows a score of 70 for the MAIN CRITERIA QUALITY and SUBCRITERIA AUDIT.

Scores for Semi-Automatic and Automatic Subcriteria

Detailed information

Log of Automatic Subcriteria

Purch. Org. : 3000 PurchOrg US	Vendor.....: MORRIS Todd		
Main Crit...: 01 Price	Subcrit.: 01 Price Level	Cat: 4	
Info Rec. Material	Short Text	Plant SC	
Price Origin	Comparison Price	Eff. Price	Score
5300007338 2893	Hair Growth (Herbal) Solution		
Single Sourcing	97.00	97.00	40
Main Crit...: 02 Quality	Subcrit.: 01 GR Lots	Cat: 7	
Material	Short Text		Score
Plant	Insp.Ty.		
2893	Hair Growth (Herbal) Solution		75
Main Crit...: 02 Quality	Subcrit.: 03 Audit	Cat: 9	
Plant	Insp.Ty.		Score
2893	Hair Growth (Herbal) Solution		70
3000			70
3000			70
Main Crit...: 03 Delivery	Subcrit.: 01 On-time delivery	Cat: 3	
Info Rec. Material	Short Text	Plant Score	
2893	Hair Growth (Herbal) Solution	3000 97	

Figure 19.7 Individual Log

Quality Score: Goods Receipt Inspection

Choose material 2893, and then choose DETAILED INFORMATION, and Figure 19.8 appears. Choose material 2893, and then choose DISPLAY INSP. LOTS, and the system displays a list of the relevant inspection lots showing the date of the UD and the relevant QS (Q-SCORE) for the particular material.

Display insp. lots

Purch. Org. : 3000 PurchOrg US	Vendor.....: MORRIS Todd		
Main Crit...: 02 Quality	Subcrit.: 01 GR Lots	Cat: 7	
Material	Short Text		Score
Plant	Insp.Ty.		
2893	Hair Growth (Herbal) Solution		75
	Goods Receipt Inspection for Order		
2893	Hair Growth (Herbal) Solution	100	
	Goods Receipts Without Check		

Inspection Lot	Material	Lot created on	Q-score	No. GRs
3498	2893	09.10.2014	100	1
3499	2893	09.10.2014	50	1

Figure 19.8 Goods Receipt Inspection Lots

Next, you need to evaluate how recording quality notifications for the vendor eventually influence vendor evaluation.

Quality Score: Shop Floor Complaints (Quality Notification)

If you want the system to consider quality notifications during vendor evaluation, then you need to ensure that you meet the following requirements:

- ▶ Quality notification type used should be Q2 (COMPLAINT AGAINST VENDOR), in which you enter procurement details, or at least vendors' details. See Chapter 11 for more details.
- ▶ The notification's status should have a *Complete* status. On completion of quality notification, the system brings up a pop-up, wherein you need to select the EXTERNAL ORIGIN radio box.

Finally, you'll see the influence that audit inspections have on vendor evaluation in general and the QS of subcriteria audits in particular.



Note
Refer to Chapter 20 on audit management, which also covers how to create audit inspection lots (inspection type 07) that then become part of vendor evaluation.

Quality Score: Audit Inspection

Figure 19.9 shows the details of several inspection lots from the vendor audit, including the QS of each inspection lot.

Plant	Insp.Ty.	Score
2893	Hair Growth (Herbal) Solution	100
3000	Audit Inspection	
2893	Hair Growth (Herbal) Solution	50
3000	Audit Inspection	
2893	Hair Growth (Herbal) Solution	100
3000	Audit Inspection	
2893	Hair Growth (Herbal) Solution	100
3000	Audit Inspection	
2893	Hair Growth (Herbal) Solution	100
3000	Audit Inspection	
2893	Hair Growth (Herbal) Solution	1
3000	Audit Inspection	

Inspection Lot	Material	Lot created	QSc	No. GRs
70000000016	2893	09.10.2014	100	1
70000000010	2893	09.10.2014	50	1
70000000011	2893	09.10.2014	100	1
70000000013	2893	09.10.2014	100	1
70000000014	2893	09.10.2014	100	1
70000000015	2893	09.10.2014	1	1

Figure 19.9 Audit Inspection Lots

Figure 19.10 shows the new and updated QS after several more business transactions that have a direct influence on not just the criteria quality, but also its sub-criteria. The rounded-off new scores (85) with quality and delivery scores also match the calculation previously shown in Table 19.1.

	Old scores	New scores
Overall evaluations:	71	85
01 Price	40	40
01 Price Level	40	40
02 Price history	0	0
03 Market behavior	0	0
02 Quality	59	79
01 GR Lots	80	73
02 Shopfloor Complaint	1	97
03 Audit	75	72
03 Delivery	100	100

Figure 19.10 Latest Vendor Evaluation Scores

We recommend that you perform an automatic new evaluation regularly, such as on a monthly basis or at the end of a quarter. However, you can always perform an update at any time between these intervals. The frequency with which you maintain the vendor evaluation depends on your company's business needs.

19.1.5 Additional Functions

Following are some of the additional functions available when you're already in the vendor evaluation submenu (LOGISTICS • MATERIALS MANAGEMENT • PURCHASING • MASTER DATA • VENDOR EVALUATION). We'll discuss them briefly in the next subsections.

Display Vendor Evaluation

Using Transaction ME62, you can display the vendor evaluation.

Compare Evaluations

Transaction ME64 allows you to determine the QS of a vendor for a material or material group and use the QS for a comparison among all supplied materials.

Changes

Each new vendor evaluation is also a change to the existing one. Using Transaction ME6A, you can determine who created a new vendor evaluation and when and therefore display the previous as well as current values.

Evaluation in Background

Using Transaction ME6G, you can maintain a job that regularly runs in the background and, for example, performs a reevaluation of the vendors on a bi-monthly basis.

[+] Tips & Tricks

The program name for background job of vendor reevaluation setup is RM06LBAT, and you can choose the evaluation frequency, such as weekly or monthly.

Vendors without Weighting Keys

If you access the automatic evaluation in the background, the weighting key assignment might be missing. An assignment of weighting keys is necessary if you've evaluated vendors with different weighting keys in the background evaluation or haven't specified a weighting key. Using Transaction ME6E, you can maintain the background evaluation with the weighting key.

Print Evaluation Sheet

You can print the document of the current evaluation of a vendor with the overall score, main criteria, subcriteria, and evaluation. You may often send the printed evaluation sheet to the vendor to inform them about the current status. Prior to this, the default form generally must be adapted by an SAPscript (ABAP) developer to meet the company's requirements. Access Figure 19.11 using Transaction ME6F, which is the vendor evaluation sheet for vendor Morris Todd with the overall evaluation and other details.

Display Text:		
Vendor evaluation sheet		Page 1
Vendor	MORRIS	Todd
Created by	JAKHTAR	
Created on	09.10.2014	
Overall evaluation 71		
Price	40	
Quality	59	
Delivery	100	
Detailed evaluation		
Price		
	Price Level	40
	Price history	0
	Market behavior	0
Quality		
	GR Lots	80
	Shopfloor Complaint	1
	Audit	75
Delivery		

Figure 19.11 Vendor Evaluation Sheet

Ranking List of Vendors

Using Transaction ME65, the ranking list of vendors allows you to display a list of vendors with the corresponding overall scores and the scores for the main criteria. You can select the vendors for display in the initial screen. You can sort the hit list to display the vendors in descending order, not only in terms of the overall score, but also in terms of the main criteria. If you choose a vendor and then click the EVALUATION button, the system shows a detailed evaluation of these vendors for the specified main criteria and subcriteria.

Evaluations per Material/Material Group

Transaction ME6B creates a list of the vendors for a specific material or material group. Such a list is often useful if different vendors supply the same material.

Vendors without Evaluation

Transaction ME6C displays a list of vendors for whom you have not yet performed vendor evaluation.

Vendors Not Evaluated Since

Transaction ME6D creates a list of vendors who haven't been reevaluated since the specified key date.

Standard Analysis

The system embeds the standard analysis in the Logistics Information System (LIS). Some of the key figures available for evaluation are as follows:

- ▶ Quantity reliability
- ▶ On-time delivery
- ▶ Quality audit (not updated until ECC 6.0 EhP7)

Transaction ME6H is available for standard analysis of vendor evaluation.

[»]

Note

Refer to Chapter 18 on reporting in the QM component. This chapter also contains a report for vendor evaluation, which is developed using SAP QuickViewer.

19.2 Quality Level

The quality level (Q level) is a data record that contains information on inspection levels for characteristics, inspection lots, and material, as well as purchasing information of the vendor. The Q level is relevant only if you're using the Dynamic Modification Rule (DMR), which determines how you can control a change to the severity of inspections or in fact skip an inspection. In short, the Q level is a kind of reminder of how the system should handle the next inspection. For a scheduled dynamic modification, the system automatically creates a Q level with the next inspection lot. For the first inspection lot, the system derives the inspection severity from the start level of the DMR. In the inspection plan of a material, you can make a distinction between dynamic modification by characteristic and dynamic modification by inspection lot.

19.2.1 Updating the Quality Level during Inspection Lot Creation

If you haven't maintained the Q level, the system will do it automatically during inspection lot creation. Initially, the system sets the evaluation to Acceptance and then increases the relevant counters. Results recording by characteristic has no initial effect on the evaluation. The evaluation might change with the UD. Even if only one characteristic was rejected (worst-case rule), this leads to a "not OK" (NOK) evaluation for a lot-based dynamic modification. Therefore, it's not the UD (e.g., Rejection) that influences the DMR, but the rejection of the characteristic. For DMR by characteristic, the only determining factor is the evaluation of the particular characteristic.

The UD updates the Q level according to the characteristic evaluations. If you make a UD without confirming any characteristic results (which is possible), the DMR doesn't work in the case of a characteristic rejection. The DMR can only work as intended if at least one characteristic is confirmed and completed with a negative result.

Note

Refer to Chapter 8, Section 8.1 on DMR, which you'll now use as one of the Quality Control tools.

[«]

19.2.2 Manual Creation of the Quality Level

The system automatically creates a Q level as soon as it triggers DMR. However, we suggest that you create the Q level manually in advance because you need to specify a different start level than the one preset in the DMR for certain material. You can create a Q level only for lot-based dynamic modification. To initially create a Q level, use Transaction QDL1 or follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY INSPECTION AND QUALITY LEVEL • CREATE. Enter the necessary details, such as material and plant, and the system automatically checks whether the DMR is already in place. On the next screen, you can manually set the initial Q level.

19.2.3 Evaluating Quality Level

To evaluate the Q level of the material CH-3000 and plant 3000 from the example in Chapter 8, use Transaction QDH2 or follow the menu path LOGISTICS • QUALITY

MANAGEMENT • QUALITY CONTROL • EVALUATION OF ORIGINAL DOCUMENTS • QUALITY LEVEL • HISTORY.

Figure 19.12 ❶ shows the selected data of the Q level. Notice that the TIME OF DYN. MODIFIC. (dynamic modification) is at the time of USAGE DECISION. Choose INSPECTION LOT in ❶, and ❷ presents a graphical version of how DMR trends based on inspection severities (the Y-axis).

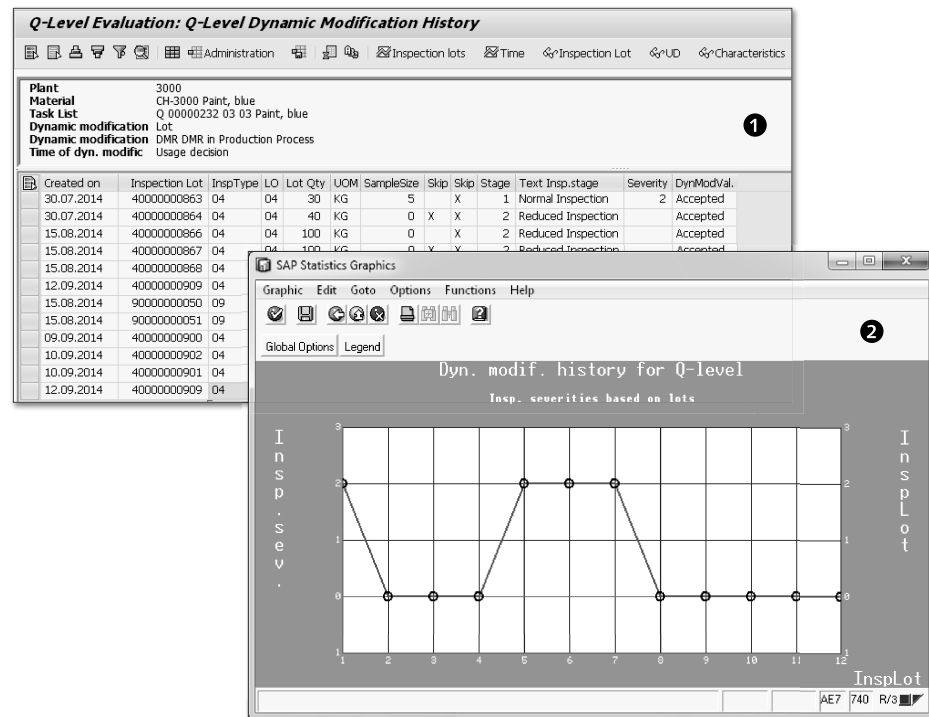


Figure 19.12 Q Level Evaluation

[+] Tips & Tricks

We suggest that you evaluate various options available for evaluating original documents, including quality scores, inspection results, history of inspection characteristics, or master inspection characteristic. To do so, follow the menu path LOGISTICS • QUALITY MANAGEMENT • QUALITY CONTROL • EVALUATION OF ORIGINAL DOCUMENTS.

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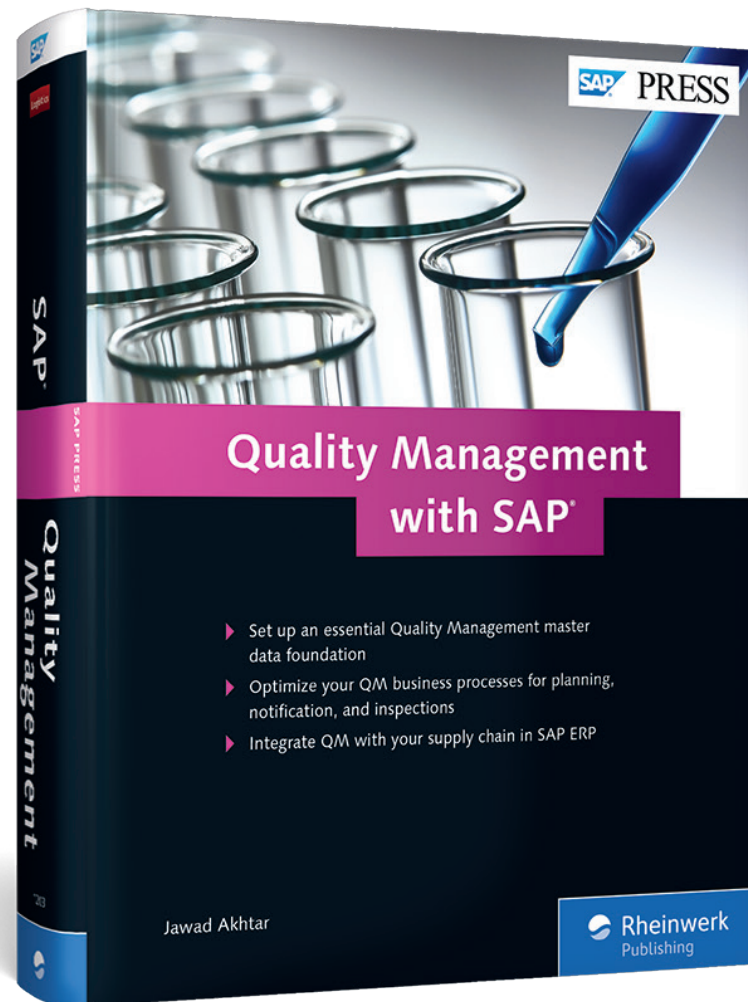
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Quality Management with SAP

883 Pages, 2015, \$79.95/€79.95

ISBN 978-1-4932-1203-3

 www.sap-press.com/3755



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