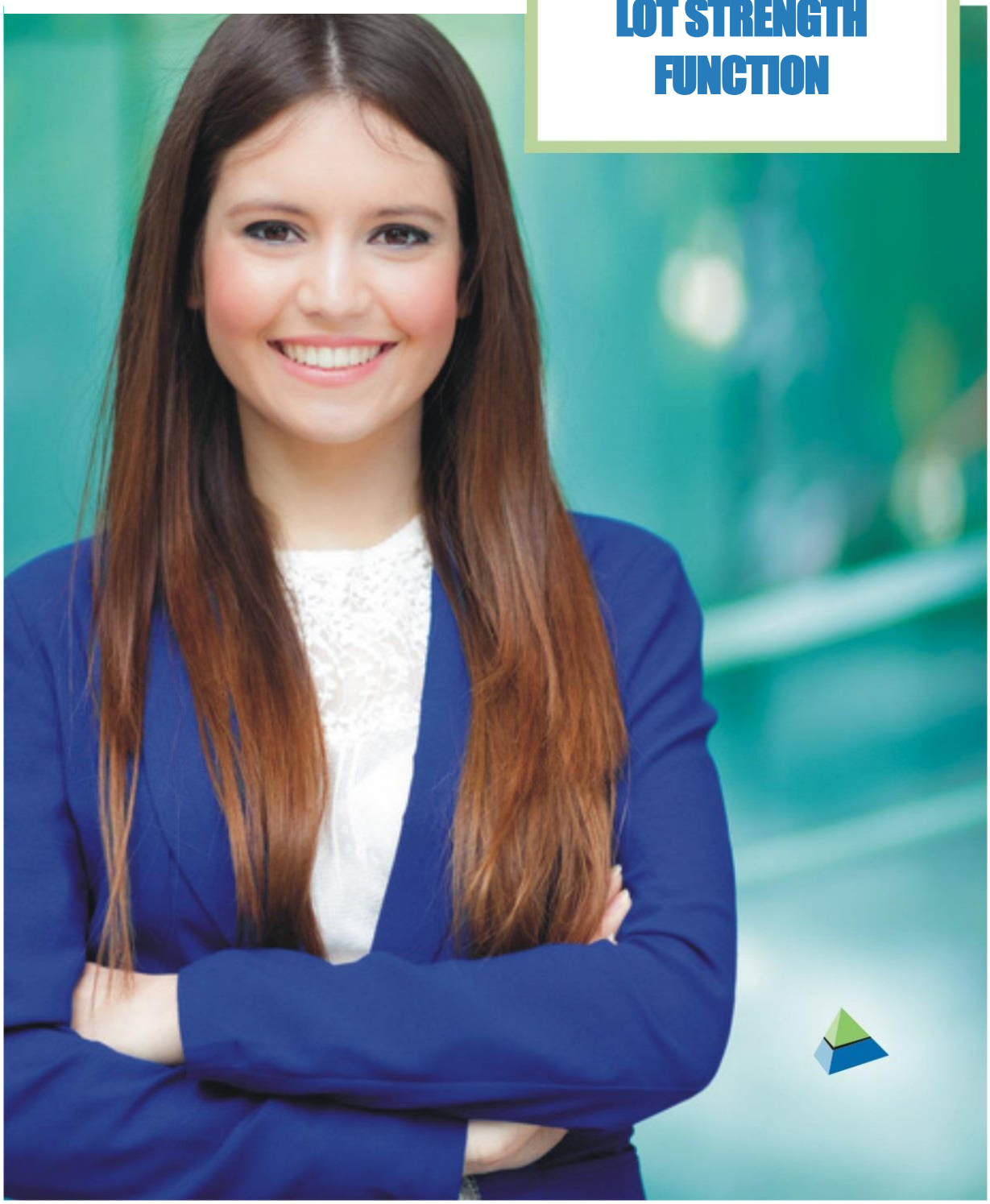
BATCHMASTER® ERP 18.2

User Guide

BatchMaster ERP with SAP Business One
BatchMaster Solutions for
Process Manufacturers

LOT STRENGTH FUNCTION



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1 INTRODUCTION

'Lot strength' refers to the percentage of an active ingredient of an item present in a specific lot of that item. For example, fat is the active ingredient of the item *Milk*. A lot strength of 60% for a specific milk lot indicates that it contains 60% fat.

To help explain how BatchMaster ERP assures correct lot strength, consider the following example:

Your finished product is a mango milkshake. To produce 1,000 liters of product, your formula requires 200 liters of milk with 80% lot strength. To produce the milkshake, you issue milk from three different lots from inventory: the first lot with 80% lot strength, the second lot with 70% lot strength, and the third lot with 100% lot strength.

Based on information entered with the procedure below, the system will calculate:

- How many liters of milk should be drawn from each lot to obtain 200 liters at 80% lot strength?
- How much of a solvent or filler item should be mixed with these milk lots to produce 1,000 liters of mango milkshake.

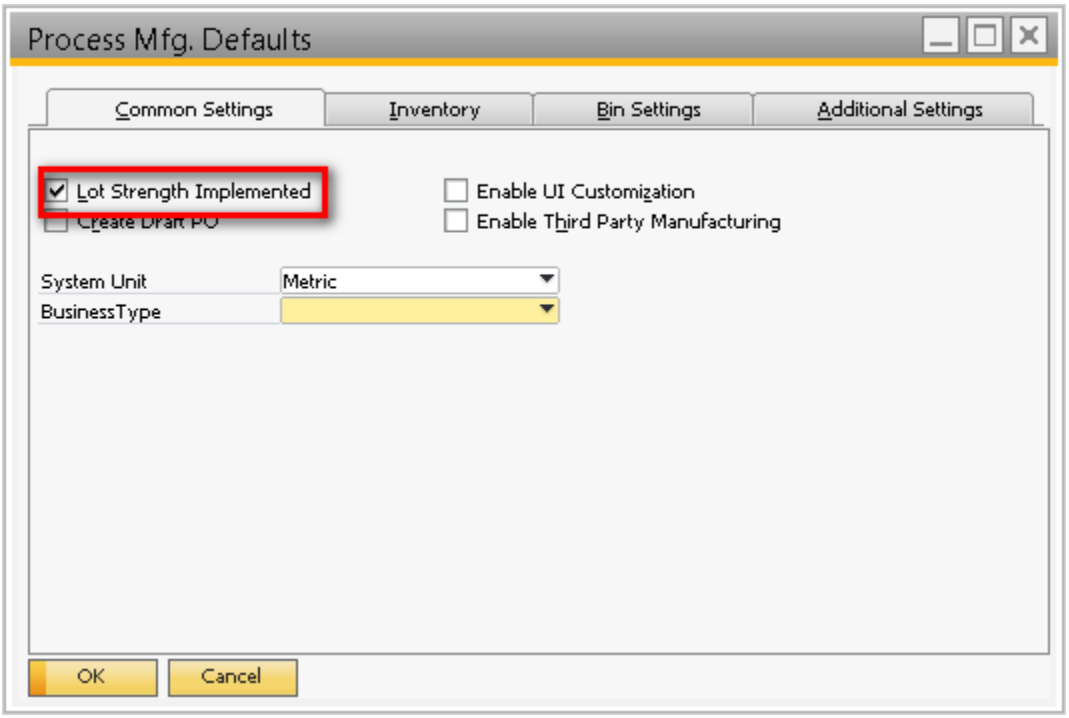
Lot strength calculation is only available for lot-tracked items. For serial and non-tracked items, this feature does not apply.

2 IMPLEMENTING LOT STRENGTH CALCULATION

2.1 Enable Lot Strength Functionality

Go To: Administration → Setup → System Initialization → Process Mfg. Defaults.

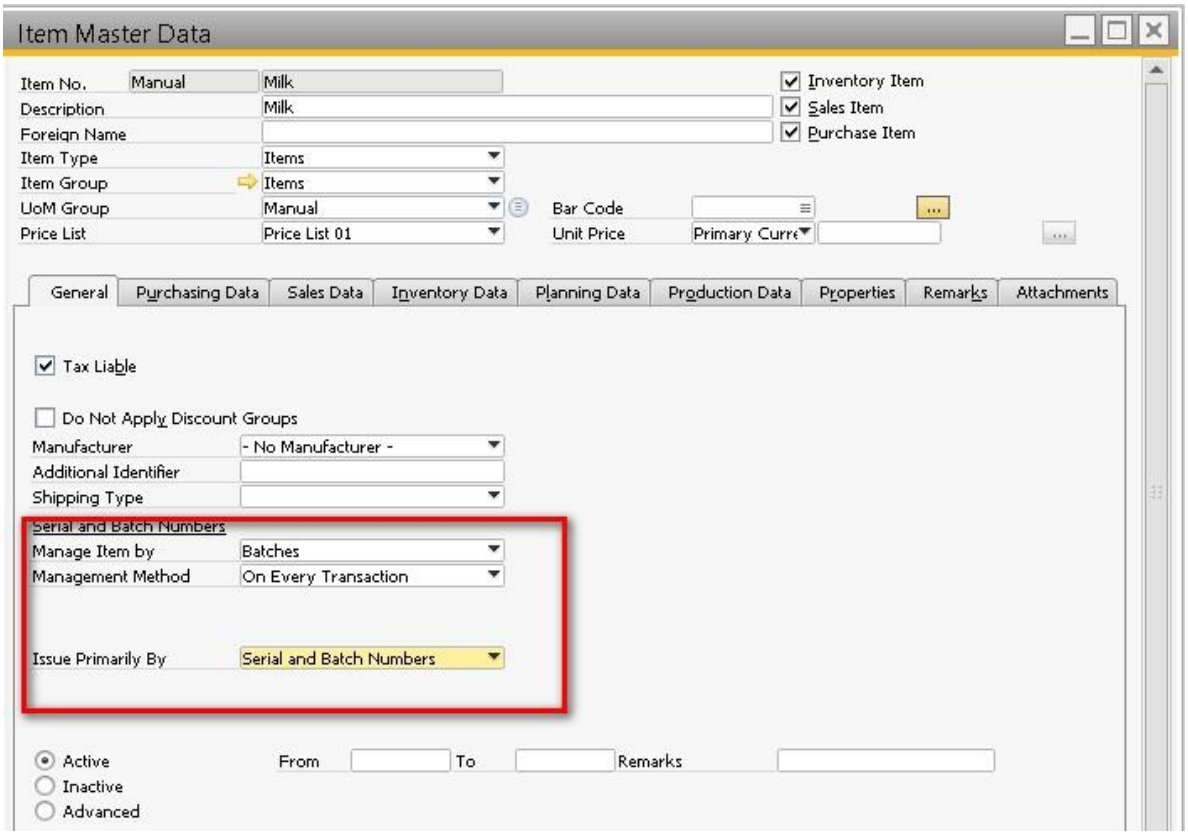
1. On the *Common Settings* tab, select the checkbox that corresponds to the *Lot Strength Implemented* option.



Each of the following steps assumes the user has a basic understanding of the function. For help with specific functions, refer to the appropriate user guide.

2.2 Define Items as Lot-Tracked

Define ‘milk’ as a lot-tracked item in the *Item Master Data* screen. To do so, select the *Batches* option in the *Manage Item By* field.



Next, go to the *Lot Strength* field in the *Item Master Details* screen to enter the required lot strength.

The value entered in this field is auto-populated into the *Formula Entry* screen when a formula is prepared using the item. You can override the default value, if required.

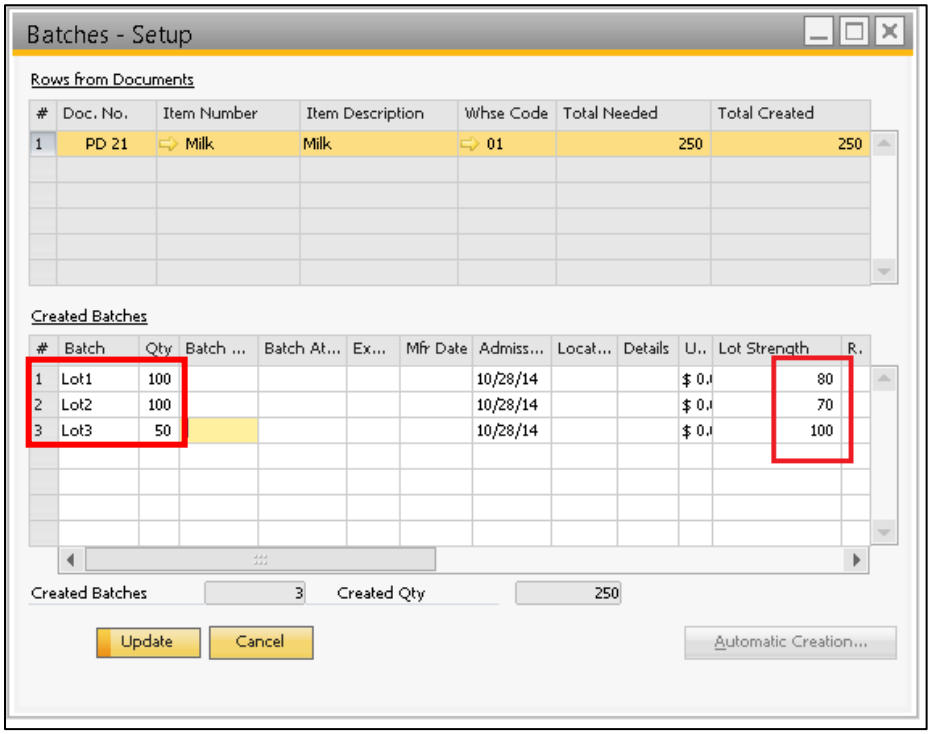
Now, for the purpose of the example, define ‘water’ as another item. In the subsequent steps, you will use it as a solvent or filler item in the formula for the milkshake.

2.3 Purchase and Receive Item Lots

1. Create a purchase order for 250 liters of item ‘Milk’.
2. Receive three lots totaling 250 liters.

Receive three lots of milk from a vendor. Go to the *Goods Receipt PO* screen to receive the goods.

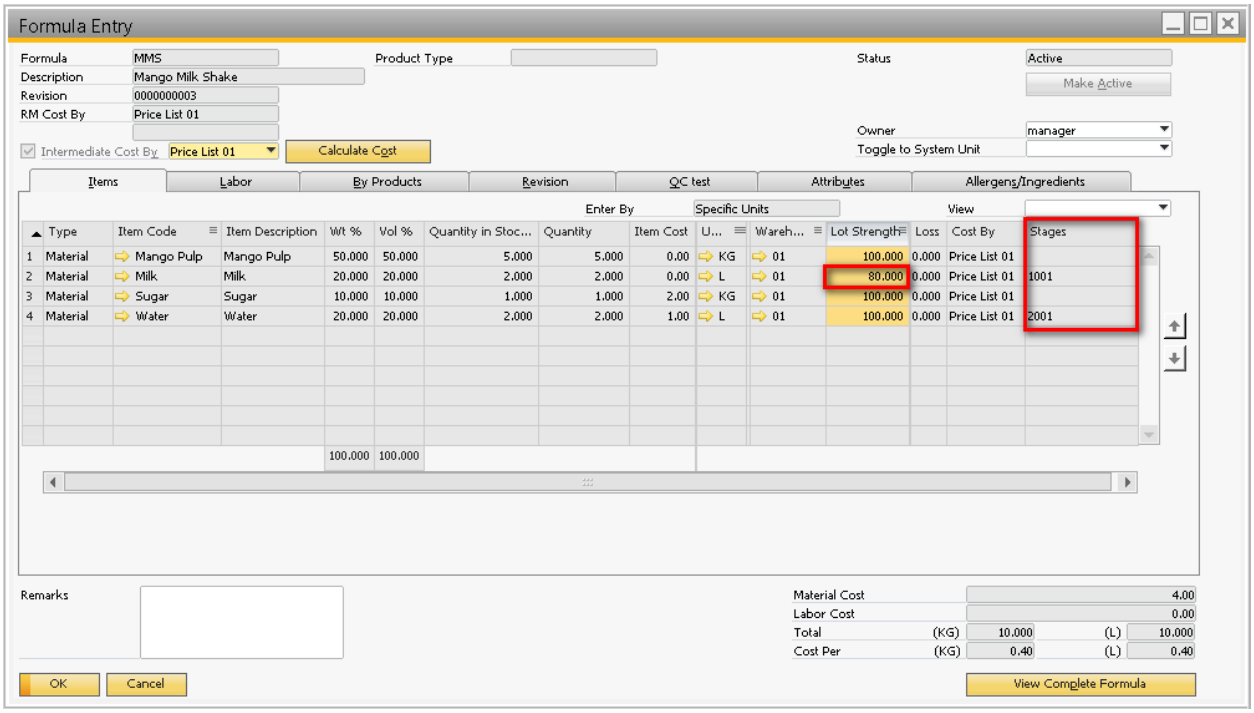
As part of the receiving process, you must select bins for the lots and specify the lot strengths as 80%, 70%, and 100%, respectively.



2.4 Define the Formula

Create a formula for *Mango Milkshake* and specify the lot strength of milk as 80%. Notice the 'stages' column. Stages are used to link 'primary' item and its associated solvent or filler item. Primary items are numbered between 1001 and 1999, while secondary items are numbered between 2001 and 2999. To make the link, the last three numbers of the stage must match. Based on the quantity of the main item needed to fulfill lot strength requirements, the solvent item quantity will be computed.

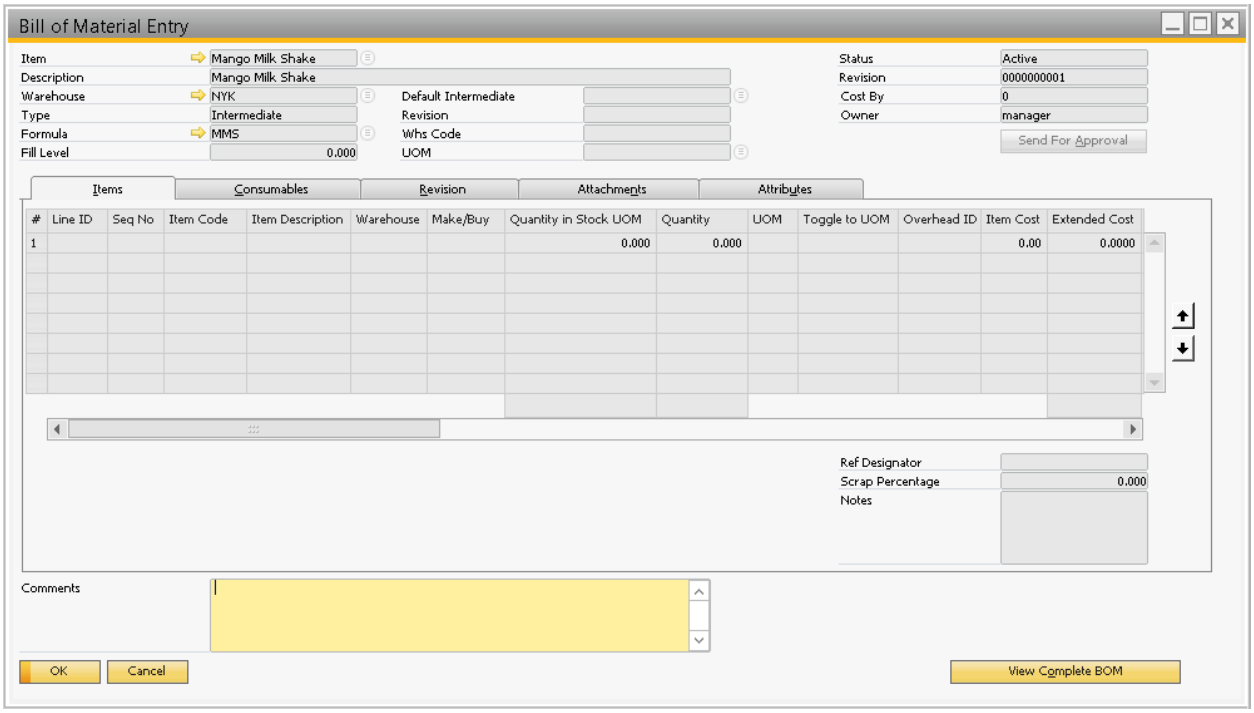
For example, define *Milk* as the main item and *Water* as the solvent or filler item by specifying 1001 and 2001 respectively in the *Stages* column.



Make sure the formula status is Active. For information on using the *Formula Entry* screen, refer to the *BME-B1 18.2 Formulation User Guide*.

2.5 Create a Bill of Materials

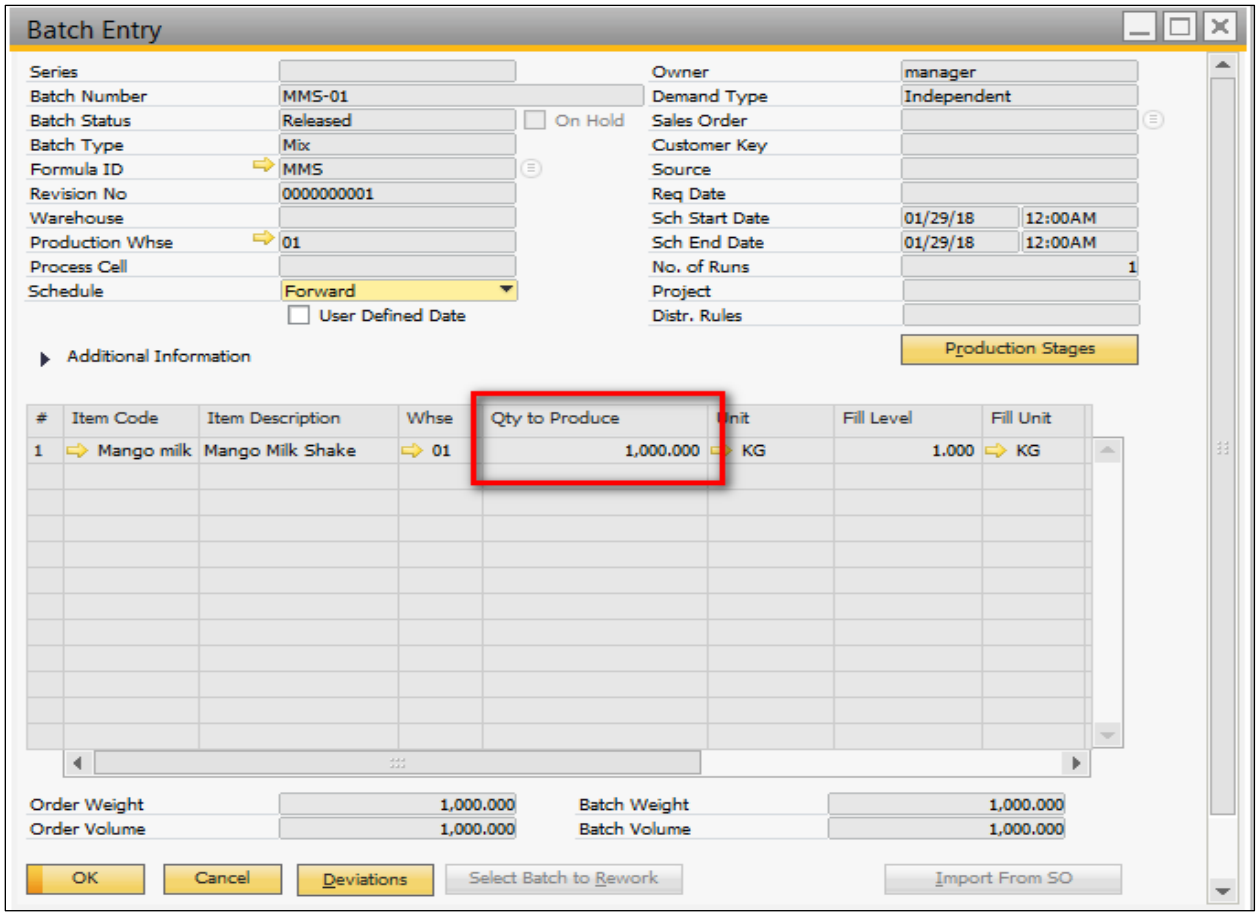
Create an intermediate BOM for *Mango Milkshake*.



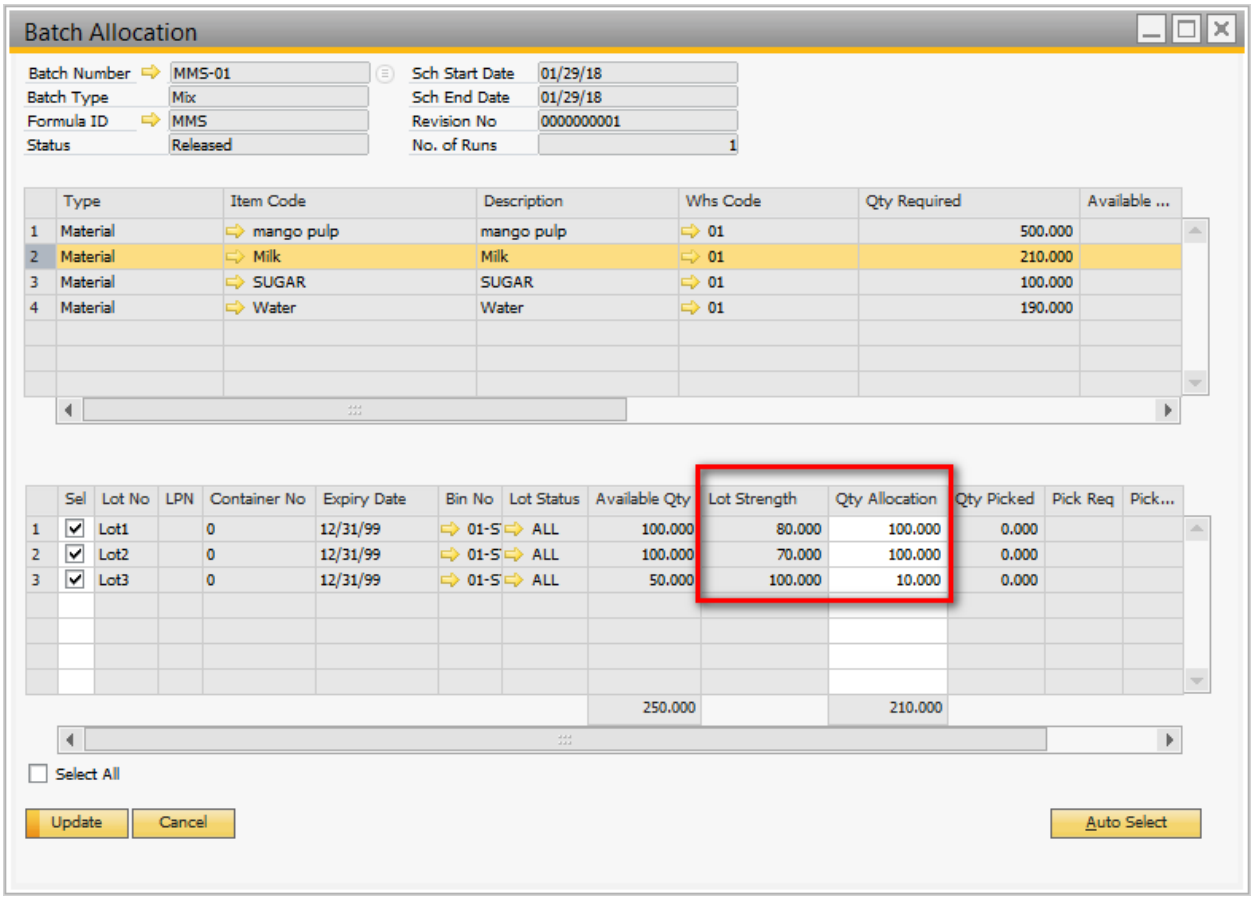
Make sure the BOM status is Active. For information on using the *Bill of Material Entry* screen, refer to the *BME-B1 18.2 BOM User Guide*.

2.6 Production Batch

Create a mix-type batch to produce 1,000 liters of Mango Milk shake and release the batch.



Allocate material lots for Milk in the batch. Select all three lots that have varied lot strengths.



Once you have selected the lots, BatchMaster ERP automatically calculates and displays the quantities to be allocated in the *Qty Allocation* column of the screen. The calculation details are explained on the following page.

For information on using the *Batch Entry* screen, refer to the *BME-B1 18.2 Production User Guide*.

Calculations

Quantity of milk required in the batch = 200 liters with 80% lot strength.

Lots selected for production issue:

Lot Number	Quantity Available	Lot Strength
B001	100 Liters	80%
B002	100 Liters	70%
B003	50 Liters	100%

BatchMaster ERP has to calculate how many liters of milk it should draw from each lot to obtain 200 liters of milk with 80% lot strength.

3. The first lot has 80% lot strength, so BatchMaster ERP will draw the entire quantity (100 liters) from that lot.

   Quantity drawn from first lot = 100 liters at 80%

   Quantity required = 200 liters at 80%

   Remaining quantity = 200 – 100 = 100 liters at 80%

4. The second lot contains milk at 70% lot strength. We need 100 liters at 80%.

   Quantity required at 70% = (100 x 80)/70 = 114.29 liters at 70%

   But we only have 100 liters at 70%.

   Quantity drawn from second lot = 100 liters at 70%

   Quantity required = 114.29 liters at 70%

   Remaining quantity = 114.29 – 100 = 14.29 liters at 70%

5. The third lot contains milk at 100% lot strength. We need 14 liters at 70%.

   Quantity required at 100% = (14.29 x 70)/100 = 10.003 liters

   So, BatchMaster ERP will allocate materials as follows:

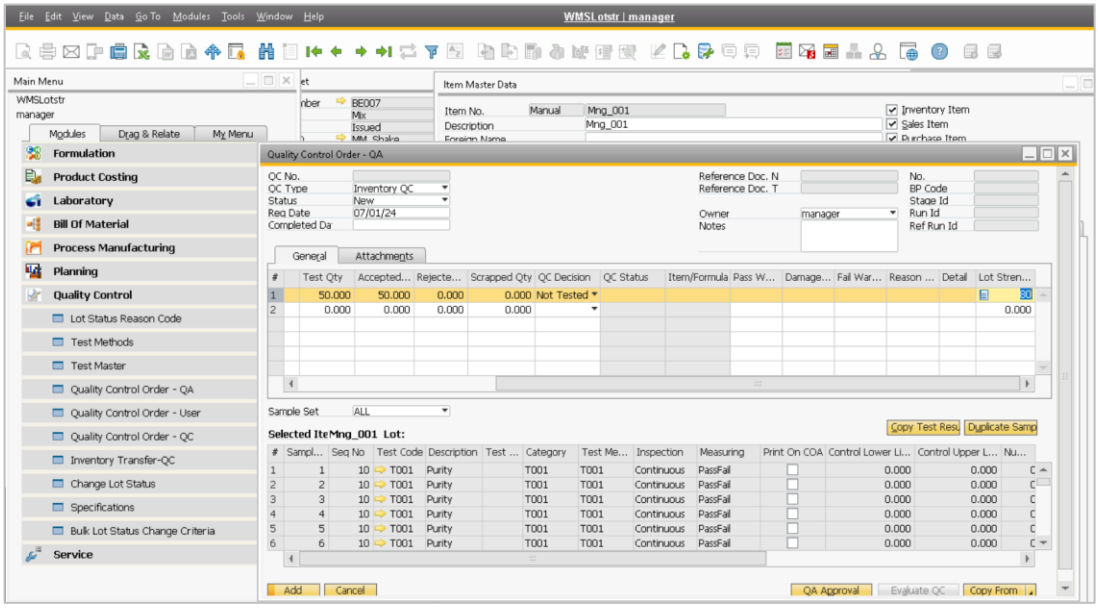
   Quantity drawn from first lot = 100 liters at 80%

   Quantity drawn from second lot = 100 liters at 70%

   Quantity drawn from third lot = 10 liters at 100%

   Total quantity of milk drawn = 100 + 100 +10 = 210 liters

If QC applies to the batch, it will retrieve the lot strength for the selected received lot. If any modifications are made to the lot strength in the *Quality Control Order - QA* screen, they will be directly applied to the corresponding lot.



2.7 Generate the Batch Ticket

After allocating lots for milk, open the *Batch Ticket* screen by right-clicking on the *Batch Entry* screen and selecting the *Go To Batch Ticket* option. Note that the Batch Ticket screen displays the required quantity of solvent or filler item as 190 rather than 200 (according to the formula). This is done in order to hold the batch size constant.

The calculations for it are as follows.

Calculations

According to the formula, we require the following for the batch:

- 500 liters of mango pulp.
- 200 liters of milk at 80% lot strength.
- 200 liters of solvent (water).
- 100 kilograms (kg) of sugar.

Total batch size = 1,000 liters.

BatchMaster ERP calculates the quantity of solvent required as follows:

Quantity of solvent (water) required = Quantity of milk and solvent required - Quantity of milk allocated

Quantity of solvent (water) required = 400 – 210 = 190 liters

The quantity of solvent will be changed based on any changes in the actual quantity of the main item.

Notes:

- BatchMaster ERP allocates material from the second lot only when it cannot draw sufficient material from the first lot.
- BatchMaster ERP calculates quantities of solvent based on the quantity of the main item allocated. You cannot manually change the quantity of solvent.

The batch can now be processed using standard procedures. For information on material issues and reporting production, refer to the *BME-B1 18.2 Production User Guide*.

2.8 Universal Solvent

Implementing the Lot Strength feature usually defines one to one mapping between a solute and a solvent. It means for every solute there is a solvent and is identified by its stage value. (The stage value of solute is numbered between 1001 and 1999 and of solvent between 2001 and 2999. To establish a link between a solute and solvent, their stage value last three numbers are matched. Thus, for the solute1 of stage value 1001, its solvent stage value must be 2001, similarly for solute2 of stage value 1002, solvent2 stage value must be 2002). This one to one mapping between a solute and a solvent is not helpful when a business uses a single solvent with multiple solutes. To achieve it, the standard lot strength feature is enhanced with an additional feature of Universal Solvent. The relationship between the Universal Solvent to the solutes will be one to many. You can define a solvent as the Universal Solvent by defining its stage value as 2000. This Universal solvent will act as a common solvent for all the solutes so the system will adjust its quantity on the basis of the lot strength of all solutes.

Example

Item (Lot Number)	Quantity Required	Lot Strength of allocated lot	Actual Qty Required
Solute1	10 KG of lot strength 100%	80%	**(Req qty * Required Lot Strength) / Actual lot strength of the lot** (10 *100)/80 = 12.5

Solute2	10 KG of lot strength 100%	75%	**(Req qty * Required Lot Strength) / Actual lot strength of the lot** (10 *100)/75 = 13.33
Solvent	10 KG of lot strength 100%	100%	**(Actual qty Required of solvent – Qty difference obtained of solute1 – Qty difference obtained of solute2)** (10 – 2.50 – 3.33) = 4.1