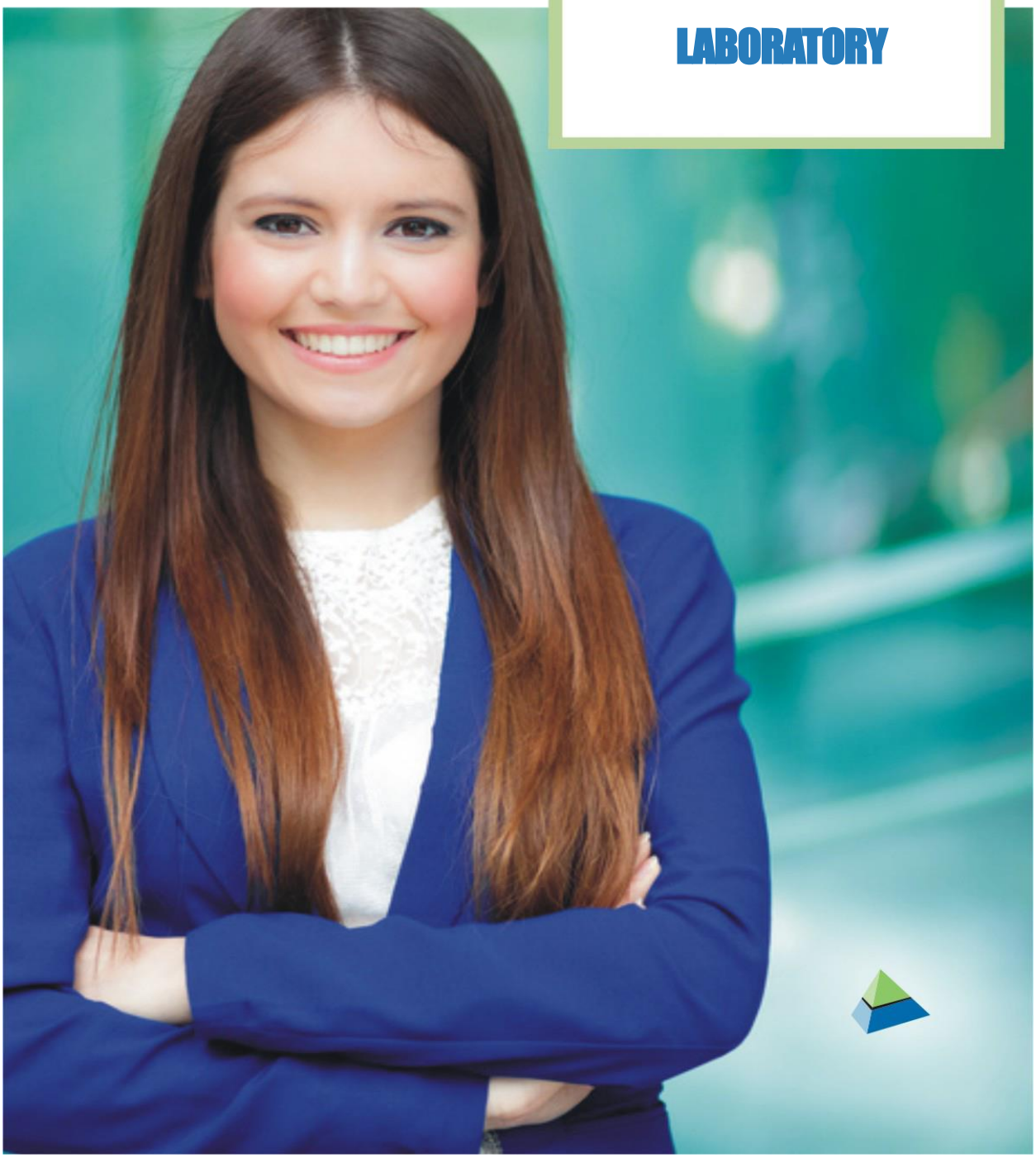
BATCHMASTER® ERP 18.2

User Guide

BatchMaster ERP with SAP Business One
BatchMaster Solutions for
Process Manufacturers

LABORATORY



Copyright and Legal Information

About the Manual

Symbols & Conventions

Symbol	Description
	Note
	Mandatory setting
	Tips

Convention	Description
Italicized (*Sales Order Entry*)	Module name, screen name & components
" " ("BatchMaster ERP with SAP Business One Hardware and Software Requirements Document")	Reference document

Abbreviation	Description
BOM	Bill of Materials
COA	Certificate of Analysis
CTRL	Control
DV	Daily Values
ERP	Enterprise Resource Planning
FDA	Food & Drug Administration
FG	Finished Goods
HMIS	Hazardous Materials Information System
ID	Identification
QC	Quality Control
QTY	Quantity
SDS	Safety Data Sheet
SEQ	Sequence
UOM	Unit of Measure
US	United States
USDA	United States Department of Agriculture
WHMIS	Workplace Hazardous Materials Information System
WHSE	Warehouse

Contents

1 DOCUMENT OVERVIEW

This document gives an overview of the Laboratory function and how BatchMaster ERP can help process manufacturers. It explains features of the system in conversational language using general and industry-specific examples. After reading this you should be able to use the module in at least a basic way.

1.1 What's New In This Release?

- *Sequence Number* field on *Physical Property Equation* and *Physical Property Analysis* Screen.
- *Development Status* checkbox on *Nutritional Labeling* Report.

1.2 What Does Laboratory Do for You?

Food and Nutraceutical manufacturers can define new recipes to match target nutritional values. Paint and Chemical manufacturers can manipulate the physical properties of their products to create new products that are environmentally friendly yet cost effective. Life Science manufacturers can examine the effectiveness of new active ingredients. Cosmetic and Personal Care manufacturers can re-formulate to satisfy ever-changing market demands and fashions.

1.2.1 Property Analysis

The most important function of the *Laboratory* module is to provide an interactive property analysis for the products you develop and manufacture. The property analysis considers every material in your formulation, including their specifications and relative quantities. The formula and all of its calculated properties are displayed side by side on one screen, making your 'what-if' experimentation fast and accurate. Every time you make a change in the property or quantity of an ingredient, the changes in any number of physical properties are calculated instantly and displayed on the screen.

The system can automatically reformulate products to meet your target physical property values. Simply select one or more ingredients for modification (holding others constant,) and enter the desired target values. BatchMaster ERP will make the necessary adjustments to the selected material quantities so that the formulation exactly meets your target property (such as Coating VOC, or percentage of calories from fat).

1.2.2 Comparative Analysis

This option provides a side-by-side comparison and analysis of up to four formulas on one screen. This is a convenient way to compare different products without printing formulas. You can also print hard copies of your analysis.

1.2.3 Predefined Equation Library

BatchMaster ERP offers a pre-defined and complete library of equations for your industry. This library is especially useful for food and chemical producers, who continually strive to innovate. These equations provide consistent, reliable results with a minimum of user effort.

Chemical Industries

Included are pre-defined equations for calculating density and specific gravity, bulking factor, material cost, percent organic and inorganic solvent, percent solids, percent pigment, percent total and non-volatile vehicle (vehicle solids), pigment-volume concentration, pigment-to-binder ratio, spread, cost per square foot (or meter) applied, and coating and material VOC.

Food Industries

Food manufacturers will appreciate pre-defined equations for calculating cost, total food energy (in international standard one thousand calorie (kcal) units), protein, saturated fat, monounsaturated fat, polyunsaturated fat, total fat, carbohydrate, dietary and insoluble fiber, cholesterol, sodium, calories from fat, numerous vitamins and minerals, and over a dozen daily values (%DV).

1.2.4 User-defined Physical Property Equations

Do you have your own equations? While the *Laboratory Module* is equipped with typical physical property equations tailored for your industry, you can define additional equations to calculate the physical properties for your specific business purposes such as reporting, cost reduction, or product development. BatchMaster ERP lets you add them with ease through its pre-defined operands, operators, and quantities.

Detailed descriptions of physical properties and equations are provided in later sections of this guide.

1.2.5 Update Intermediate Properties

This is a handy utility that updates the properties of an intermediate based on the properties of its raw materials, so the Physical Property Analysis can include the rolled-up properties in the calculations for a higher-level formula.

1.3 Terms You Need to Know

Most of the concepts discussed below are like BatchMaster ERP's *Formula Module*.

Material Physical Properties

In BatchMaster ERP, the ingredients of a formula are defined as raw materials. Each raw material is a physical thing with specific physical properties. A material physical property specification quantifies a characteristic of a raw material. Values for these characteristics are provided by the supplier of the raw material or derived by analysis or calculation.

In addition to the physical property specifications supplied with the software, you can define additional physical properties in the *Physical Property Master,* up to a total of 999.

Formula Physical Properties

Formulas consist of raw materials and each raw material has its own physical properties. Hence, a formula has its own physical properties, derived from the sum of physical property values of all the raw materials/ingredients. Such values are obtained using mathematical equations, which are used to derive some aspect of the formula, such as total protein. These mathematical equations are the physical property equations supplied with the *Laboratory Module* (and any you have added). In addition, there are three internally calculated formula physical properties: total formula weight, total formula volume, and total formula standard cost.

Physical Property Equations

BatchMaster ERP calculates a formula's physical properties using two types of equations: the formula physical property equation and the formula physical property adjust equation. The former defines how the system should calculate the physical property. The latter defines how the system should change raw material quantities to meet a physical property 'target' value that you have specified.

Intermediates

An intermediate is any item that is composed of one or more materials. It may or may not be sold as a finished good. Intermediates can then be included as a single line item in a formula.

1.4 Who Should Read This Document?

This document is intended for anyone who are implementing the software, learning its use, or training another person.

1.5 Objectives

This document is designed to help the reader:

- Identify the purpose and functioning of the features in BatchMaster ERP.
- Identify the industry-specific utility of each feature.
- Record data in the system and perform transactions.
- Explain the purpose of features to others using examples.
- Identify the business uses for reports and inquiries.

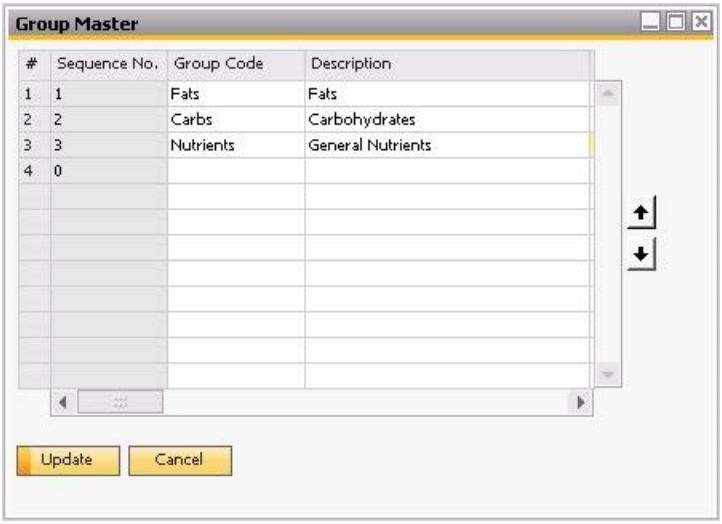
2 LABORATORY SETUP

These settings instruct the system to work according to your business policies.

2.1 Group Master

Physical properties are used to perform analysis of formulas. The system allows you to define a maximum of 999 properties. If the properties are displayed in a random sequence during analysis, you may find it difficult to locate the desired property. The *Group Master* function eliminates this problem by letting you define a sequence for property groups. In other words, you can decide which properties should appear on the top, based on their importance in your formulas.

Go To: Administration → Setup → Laboratory → Group Master.



Sequence No.: This is an auto-generated number. The sequence of the line can be rearranged using the re-sequence button on the right side of the screen.

Group Code: Specify a unique identification of the material property group.

Description: Enter a meaningful description of the group.

Re-sequence Button: Click this button to change the order of the lines or rows within the screen. Select a line and then click the up- or down-arrow key to locate that line at the desired location.

Update: Click the *Update* button to save the records.

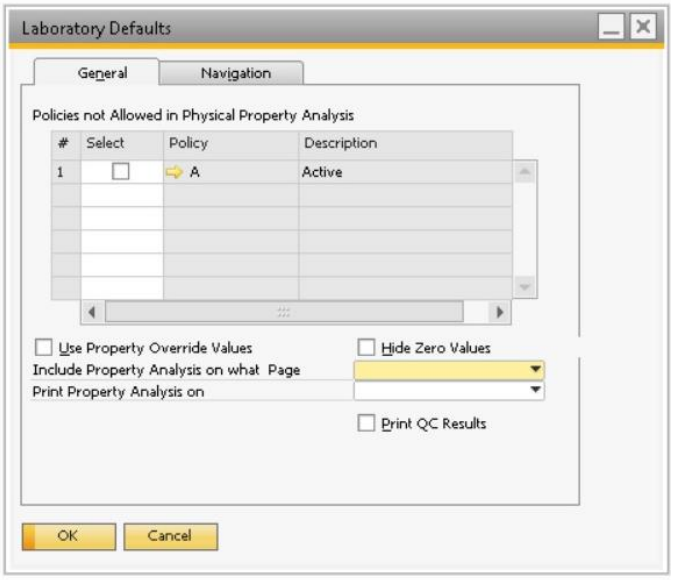
Cancel: Click the *Cancel* button to close the *Group Master* screen without saving your changes.

2.2 Laboratory Defaults

The *Laboratory Defaults* screen is used to set the default values that will be used repeatedly in several screens of the *Laboratory* module. You can:

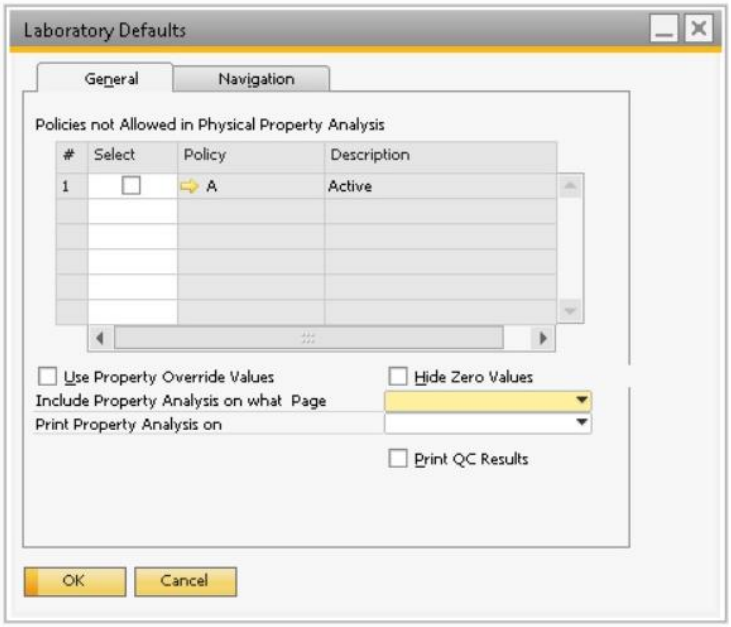
- Define printing options.
- Specify which formula policies are not allowed in physical property analysis.
- Specify the navigation settings while working on the *Physical Property Analysis* screen.
- Specify the settings for hiding/un-hiding all those properties that have zero value.

Go To: Administration → Setup → Laboratory → Laboratory Defaults.



⚠ **Pre-requisite data:** Formula Policies must be established.

2.2.1 General Tab



Policies not Allowed in Physical Property Analysis: Use filters based on formula policies to restrict certain formulas from being analyzed in the *Laboratory* module. For example, you could exclude *Inactive* and *Experimental* status from analysis.

Use Property Override Values: Specify whether the system uses calculated formula property values or user-entered property values while printing various nutritional labelling reports.

Hide Zero Values: Check this option to hide all those properties on the *Physical Property Analysis* screen that are having zero values.

Include Property Analysis on what Page: The page on which the physical properties of formulas should be displayed when printing laboratory reports. Available options displayed in the drop-down menu are:

Own Page (default)**:** Displays physical properties on a new page of the report.

Same Page: Displays physical properties on the same page as the other data in the report.

Do Not Print: Physical properties are not displayed on the report.

Print Property Analysis on: The default printing option for the laboratory reports. Available options are:

Plain Paper.

Printed Stationery.

Print QC Results: Check this box to display the results of QC tests conducted on the formula on the *Physical Property Report*. If this option is not selected, QC information will not be shown on the report.

Caption for Vertical Item Column: Specify the appropriate name for the column that will be displayed in the Items tab of the *Physical Property Analysis* screen (food vertical and Nutra databases only.)

Update: Click to save the settings made on the *Laboratory Defaults* screen.

Cancel: Click the *Cancel* button to close the *Laboratory Defaults* screen without saving your changes.

2.2.2 Navigation Tab

Here you select one or more **formula statuses** so that the application will display only formula revisions with those statuses while navigating through records in the *Physical Property Analysis* screen. For example, let's say the *Approved* and *Active* statuses are selected on the *Navigation* tab. When you navigate through formula records in the *Physical Property Analysis* screen (using the navigation buttons on the tool bar), the application will display only those formulas whose status matches your selections.

Status to Include while Navigating

#	Select	Status
1	☐	Development
2	☐	Pending
3	☑	Approved
4	☑	Active
5	☐	Hold
6	☐	Obsolete
7	☐	Cancelled
8	☐	Experimental

Select: Check the box in this column to select the formula status in the corresponding row.

Status: Formula statuses that can be included while navigating through records in the *Physical Property Analysis* screen.

At least one status must be selected for navigation before saving the data. Development status is selected by default.

2.2.3 Food Vertical Tab

This tab is displayed only when the *Enable USDA Integration* checkbox on the *Process Mfg. Setup Wizard* is selected.

Gram Unit: Specify the gram unit of weight.

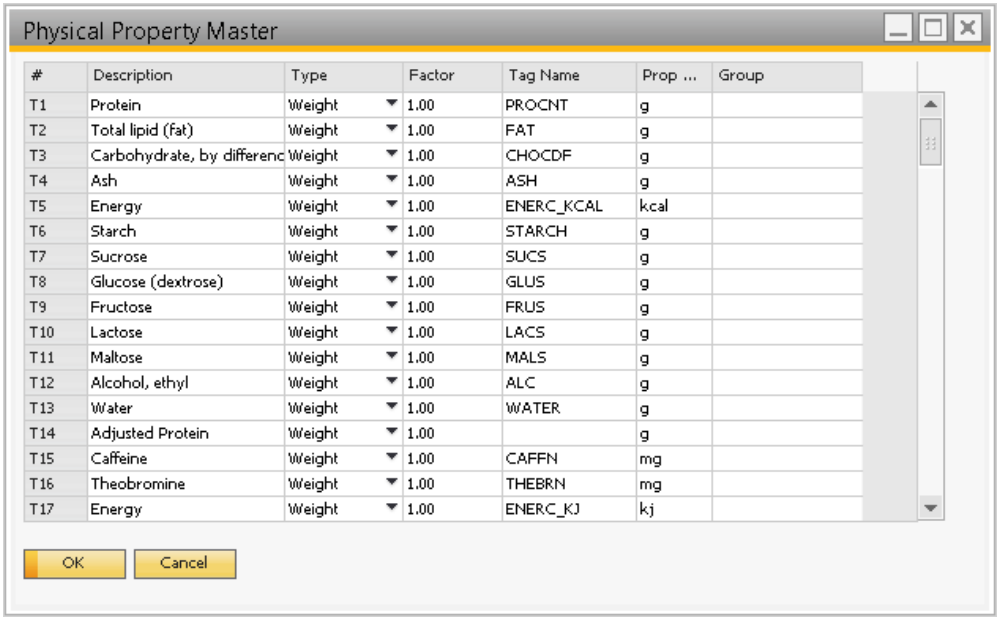
3 LABORATORY MASTER FILES

Master files are where you define parameters used throughout the module. The first master screen to define in the *Laboratory* module is the *Physical Property Master*. These properties define the nature, appearance, or behavior of the raw materials. The system uses the material physical properties of individual ingredients of a formula and simple equations to determine the overall nature, appearance, or behavior of your formulas.

3.1 Physical Property Master

Go To: Laboratory → Physical Property Master.

Click Ctrl + A to switch to Add mode.



You can define a maximum of 999 physical properties in this screen. Each property is uniquely identified by the series (T1-T999) displayed adjacent to the description. **Note: Once these properties have been defined, you must not change their series number because it is referred to in equations.** If you need to add more properties, add them at the end of the list and use property groups to organize your properties.

Description: A description of the formula property.

Type: Defines how the property will be computed. Available options are *Weight*, *Volume*, and *Constant*. You are establishing whether the physical property is a function of the raw material's weight, a function of its volume, or remains constant regardless of a change in the weight or volume.

The distinctions are critical, because the system either multiplies the physical property by the weight of the raw material, or by the volume of the raw material, or leaves it constant.

1. **Weight:** When this option is selected, the contribution of the ingredient to the total property of a formula is calculated as follows:

   Contribution of an item to total property = Weight × Factor × Property Value

   a) Weight: The weight (in System Weight UOM) of this item in the formula.

   b) Factor: The factor value defined on the *Physical Property Master* screen.

   c) Property Value: The value of that property as specified in the *Item Physical Property* screen.

2. **Volume:** If this option is selected, the contribution of the ingredient to the total property of a formula would be calculated as follows:

   Contribution of an item to total property = Volume × Factor × Property Value

   a) Volume: The volume (in System Volume UOM) of this item in the formula.

   b) Factor: The factor value defined on the *Physical Property Master* screen.

   c) Property Value: The value of that property as specified in the *Item Physical Property* screen.

3. **Constant:** When this option is selected, the contribution of the ingredient to the total property of a formula is equal to the value of that property specified in the *Item Physical Property* screen.

Factor: Used to convert the value of a Physical Property from System Weight or Volume (depending on *Type* selected) to the Unit of the Physical Property.

If your Property is a percentage regardless of the weight, then the Factor is 1, and you would enter the percentage as a decimal when assigning the Property to a Material. If you want to enter the Percentage for a Material as a whole number, then enter the Factor as .01.

If your System Weight is Pound, and your Property is measured in grams, then the Factor is 453.592, the number of grams in a Pound. If you are using a Metric system, and your System Weight is Kilogram, then the Factor is 1000, the number of grams in a Kilogram.

Tag Name: A user-defined alias for the description. You can enter any name you wish.

Food and beverage manufacturers can import ingredient physical properties from the USDA nutritional database. Doing so populates the *Tag Name* field automatically. Chemical and Coatings manufacturers can also import a basic set of pre-defined physical properties. More extensive libraries are provided through the optional Lisam integration.

Prop Unit: The unit of measure in which the property is defined. For example, Vitamin A is measured in IU.

Group (optional): If you wish you can group your properties. For example, there are different types of fats in a food product: saturated, unsaturated, and Trans fats. These properties could be placed in a single group called Fats, which is useful for sorting and reporting purposes. (See Section 2.1.)

After defining Physical Properties, you would associate these properties with your items.

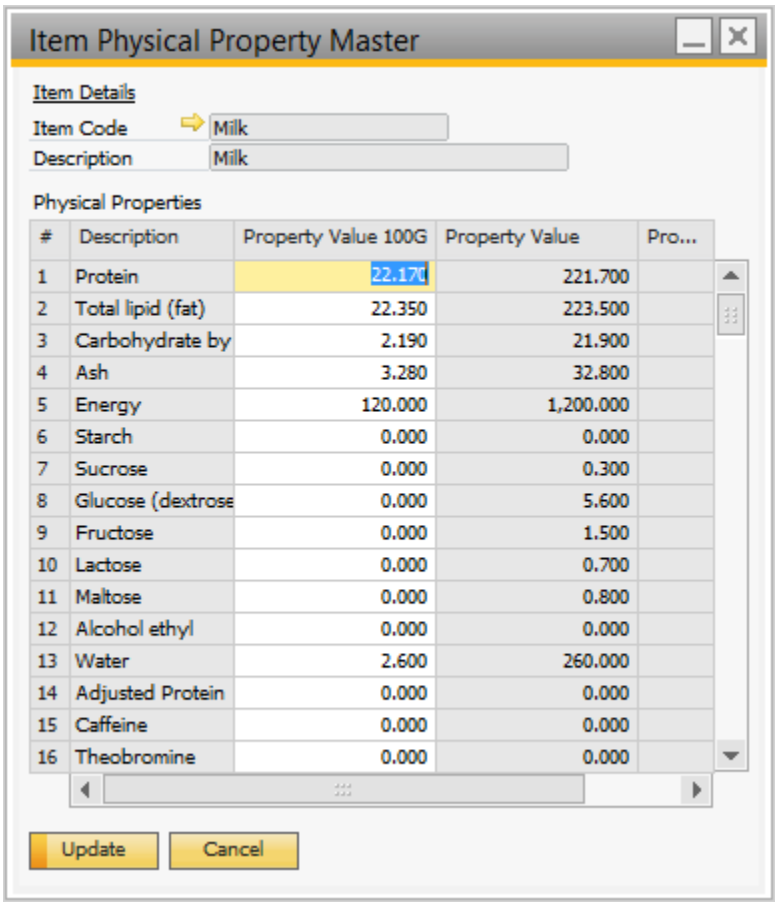
3.1.1 Recap: Defining a Physical Property

1. Open the *Physical Property Master* screen.
2. Enter the description for the property in the *Description* field.
3. Select the desired type in the *Property Type* field. Available options are *Weight*, *Volume*, and *Constant.*
4. Enter the multiplication factor in the *Factor* field.
5. (Optional) Select the group via the lookup provided next to the *Group* field.
6. Click the *OK* button to save your work.

3.2 Item Physical Property Master

For your formula's physical properties to be accurate, you must establish the physical properties for each raw material item the formula uses. You must enter a property value for each physical property. If a physical property is not applicable for an item, the property value must be set to zero. These item physical property values are used to calculate a formula's physical properties in the *Laboratory* module as well as in the BatchMaster ERP *SDS* module.

Go To: Laboratory → Item Physical Property Master.



Opening the window displays all the properties from the *Material Property Master* and defaults them to the grid.

Item Code: The item number for which you want to define physical properties. You can select the desired item using the lookup next to the *Item Code* field.

Description: The description of the selected item, taken from the *Item Master* table.

#: The property number from the *Physical Property* table. (User cannot edit.)

Description: The physical property description, taken from the *Physical Property* table.

Property Value 100 G: This column is displayed only if you have the Food vertical installed. It is used to enter the item physical property value per 100 Gram.

Property Value: Use this column to specify the value designating 'how much' of the property applies to the item (or the item possesses). For the Food vertical database this field becomes read only and displays the *Property value 100 G* in the system unit.

Property Unit (not shown: scroll to the right)**:** Taken from the *Physical Property* table.

3.2.1 Recap: Maintaining Item Physical Properties

1. Open the *Item Physical Property Master* screen.
2. In the *Item Code* field, select the item for which the physical property values should be defined.
3. Type in the description or text related to the Item Code in the *Description* field. Selecting an already saved record will display the description associated with the selected Item Code.
4. For the Food vertical database, specify the per 100 gram material property value in the Property Value 100 g field. If you don't have the Food vertical installed then specify the material property in the system unit in the *Property value* field.
5. Enter/change values of the physical properties, as desired, in the *Property Valu*e field. If a property is not applicable to the item, set the value to 0.
6. Click the *Add/OK* button to save your work.

3.3 Physical Property Equations

This screen lets you use your own equations or existing equations in calculations of physical properties of the formula. You can use an existing physical property or create a new one and assign it characteristics that were defined using the Physical Property Master screen, then write an equation which defines how the property's value is to be calculated with the formula ingredients.

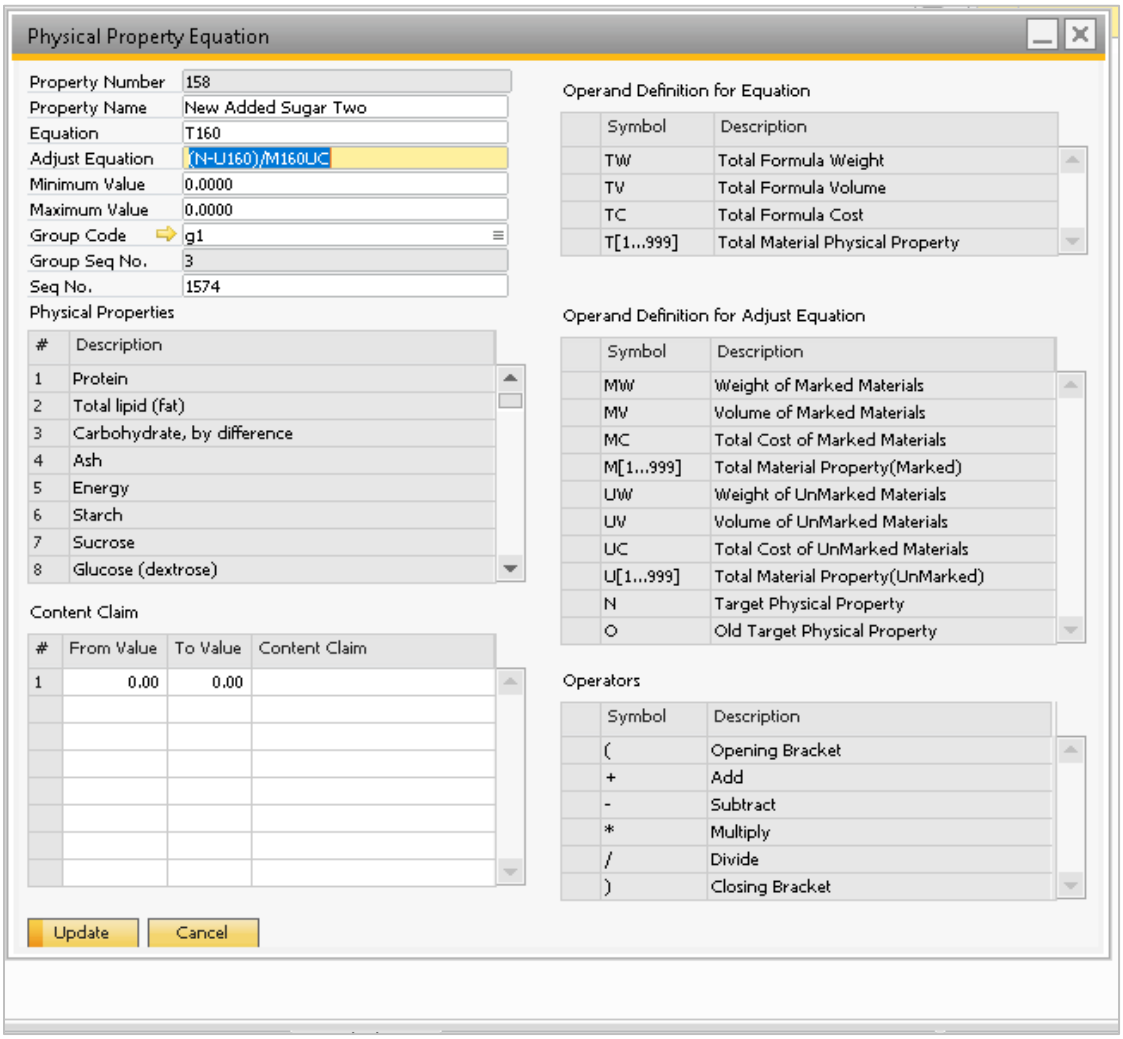
Included is an adjust equation which defines how the formula physical property is to be modified when the system adjusts a **marked material** on the Formula Items tab of the Physical Property Analysis screen. The Adjust Equation is used when raw material quantities are changed to meet a formula physical property target value. The other property values are then recalculated using the Physical Property Equation.

'Marked materials' refers to those raw materials that **are** selected for adjustment on the *Physical Property Analysis* screen to reach a target physical property value for the formula. The weight or volume

of any such selected material is called marked weight or marked volume. Lines that are **not** selected for adjustment are called unmarked lines and their weight or volume is termed unmarked weight or volume.

Minimum and maximum values for a physical property can be entered.

Go To: Laboratory → Physical Property Equation.



Property Number: The serial number of the *Physical Property Equation*. The number is auto-generated by the system when a new property is created and saved.

Property Name: The name for the physical property of the formulas.

Equation: The *Physical Property Equation* of a formula. You can enter this equation in two ways:

Type the equation manually.

Create an equation by double-clicking the various operands and operators on the screen.

This equation is used to calculate the value of the physical property of a formula.

Adjust Equation: This equation is used to calculate a factor that is applied to the weight of the marked ingredients, so as to proportion them to achieve a targeted property value for the formula. Data entry options are the same as for the Physical Property Equation.

Minimum/Maximum Value: The lower and upper limits of the physical property.

In the *Physical Property Analysis* screen, the formula property values that exceed upper limits or fall below lower limits will be highlighted by the system.

Group Code (optional)**:** When you define a physical property, the system assigns it a unique key number. This number does not change, and **you must avoid manually re-sequencing physical properties since the sequence number is referred to in equations.** As an example, if you define 10 physical properties concerning nutrients and later realize you forgot one, the last entry would not be sequentially numbered with the other nutrient properties. However, by putting the nutrients in the same group you can define the sequence in which the properties are to be displayed on the *Line Items* tab of the *Physical Properties Analysis* screen. The properties get displayed in a specific order based on their Group Code assignment. Properties with a Group Code will be listed at the beginning, while properties without a Group Code will appear afterwards.

Group Sequence Number: This field displays the sequence number associated with the group selected above. Within a group in the *Physical Property Equation* screen, the *Property Number* will decide the sequence in which the properties are displayed within that group on the *Items* tab of the *Physical Property Analysis* screen.

On the right side of the screen we see operands used to build the physical property equation and the physical property adjust equation. Below that are the mathematical symbols used in equations.

Sequence Number: Mandatory field that enables you to establish a preferred order for properties on the *Physical Property Equation* screen, and this same order will be reflected on the *Physical Property Analysis* screen. This provides the flexibility to arrange properties according to your specific needs. The system automatically assigns initial sequence numbers to properties in multiples of 10, often derived from the property number itself (for instance, Property Number 10 gets a default Sequence Number of 100). You can change these sequence numbers at any time to adjust the order in which properties are displayed.

This field support positive integer value only.

On updating the sequence number the system prompt a message as “The updated Sequence Number will be reflected in all formulas where this property is used.”

Physical Properties: A list of physical properties maintained via the *Item Physical Property Master.*

Content Claim

In this section, you can define the limits of the claim value of the physical property for a specific product. For instance, you can specify that an energy drink should have a minimum of 400 milligrams (mg) and a maximum of 500 mg of calcium.

From/To Value: The lower and upper limits of the claim value for the physical property.

Content Claim: The data entered here will print on custom reports or labels (e.g., ‘Meets Adult MDR’).

OK: Click the *OK* button to save the settings made on the *Physical Property Equation* screen.

Cancel: Click the *Cancel* button to close the screen without saving changes.

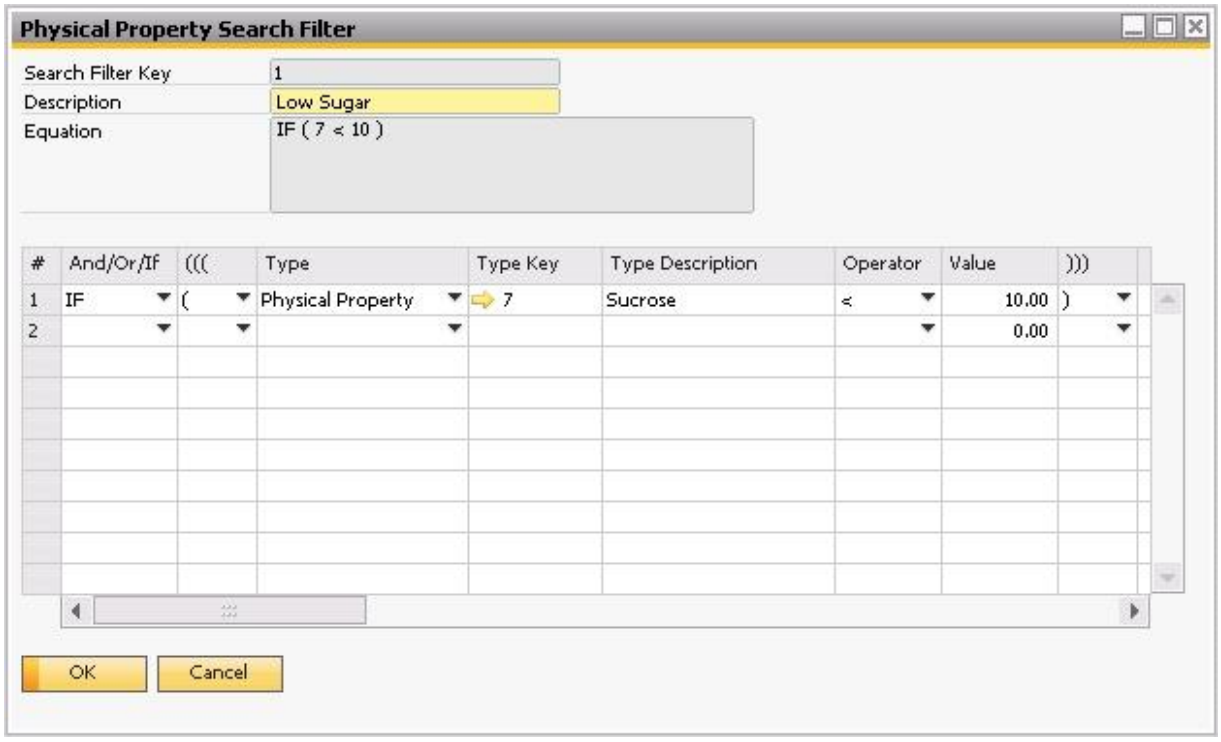
3.3.1 Recap: Entering a Physical Property Equation

1. Open the Physical Property Equation screen.
2. Click the *Insert* button on the toolbar.
3. Enter a name for the property in the *Property Name* field.
4. Enter an equation for the property analysis in the *Equation* field, by typing or by double-clicking the various operands and operators on this screen.
5. Enter an Adjust Equation for the property analysis either by typing or by double-clicking the various operands and operators on this screen.
6. Enter the lower and upper limits of the physical property in the *Minimum Value* and *Maximum Value* fields.
7. In the *Group Code* field, select the group with which the property should be associated.
8. In the *Content Claim* section, enter the claim limits of physical property for the desired products.
9. Click the *OK* button to save your work.

3.4 Physical Property Search Filter

Defining search filters based on physical properties allows you to categorize formulas for faster analysis. For example, you can search for 'low sugar' or 'high VOC' formulas.

Go To: Laboratory → Physical Property Search Filter.



Search Filter Key: A sequential number assigned by the system.

Description: Enter a brief description of the filter.

Equation: Displays the complete query once it has been built using grid parameters.

And/Or/If: The first row must be an IF statement, as shown above. If the search filter requires two queries, enter the operator that defines the relationship between them.

(((: Specify the number of opening parentheses to be used in the row statement (maximum of three).

Type: Use the dropdown to pick the filtering parameter. Available options are:

- *Physical Property*.
- *QC Target*.
- *Weight %*.

- *Volume %*.

Type Key: Click into the field, then press the *Tab* key. Select the specific parameter value from the list.

Operator: Select from the drop-down list.

Value: Enter the value to use for comparison.

))) : Specify the number of closing parentheses to be used in the row statement (maximum of three). You can create nested queries if desired.

Add/Update (not shown)**:** Click to save your edits.

Cancel: Click *Cancel* to exit the screen without saving your edits.

4 PHYSICAL PROPERTY ANALYSIS

The most important function of the *Laboratory* module is to provide an interactive property analysis for the products you develop and manufacture. The property analysis considers every material in your formulation, including their specifications and relative quantities. The formula and all of its calculated properties are displayed side by side on one screen, making your 'what-if' experimentation fast and accurate. Every time you make a change in the property or quantity of an ingredient, the changes in any number of physical properties are calculated instantly and displayed on the screen.

For instance, if you want to have a protein content of 12 grams (g) in the biscuits you manufacture, then you can specify '12g protein' as the target value and the system will indicate which ingredients of the formula should be changed, and how, to achieve this target value. You can also choose the ingredients whose quantities should be adjusted to meet the target value.

The system can automatically reformulate products to meet your target physical property values. Simply select one or more ingredients for modification (holding others constant) and enter the desired target value. BatchMaster ERP will make the necessary adjustments to the selected material quantities so the formulation exactly meets your target property (e.g., coating VOC, or percentage of calories from fat).

Using the *Physical Property Analysis* screen you can enter items that do not exist in the *Item Master* table. Furthermore, using the *Convert to Development Formula* feature, you can save various attributes of a non-inventory item such as unit of measure (UOM), weight and volume conversions, warehouse, and physical properties.

With *Physical Property Analysis*, you can:

- Identify characteristics of a formula from the *Items* tab.
- Examine all the physical properties for a formula, make changes in the ingredients, toggle units of measure, and toggle costs.
- Resize formula ingredients from the *Items* tab.
- Examine the quantity of by-products produced from the formula, their units, overhead, and other costs associated with them, from the *By-Products* tab.
- Examine the output formula, the MSDS Supplementary File associated with the formula, and the HMIS settings from the *Revisions* tab.
- Examine the loss factor, loss constant, and costs from the *Revisions* tab.
- Adjust quantities of one or more ingredients to achieve the desired value for a physical property of the formula.

Physical Property Analysis can be used to enter new formulas in the same way as the *Formula* module. This is a good option for R & D staff, as it lets them build new formulas to desired physical properties. These formulas are saved in *Experimental* status.

Achieving Target Value for a Physical Property

To achieve a specific target value for a physical property (for the formula), the analyst enters the target value and BatchMaster ERP makes changes in the quantities of the raw materials in order to meet the target. For instance, if a food manufacturer wants a protein content of 12g in their 'Big Biscuits,' he would specify '12g protein' as the target value. He must also specify the ingredients whose quantities should be adjusted by checking the rows for those ingredients.

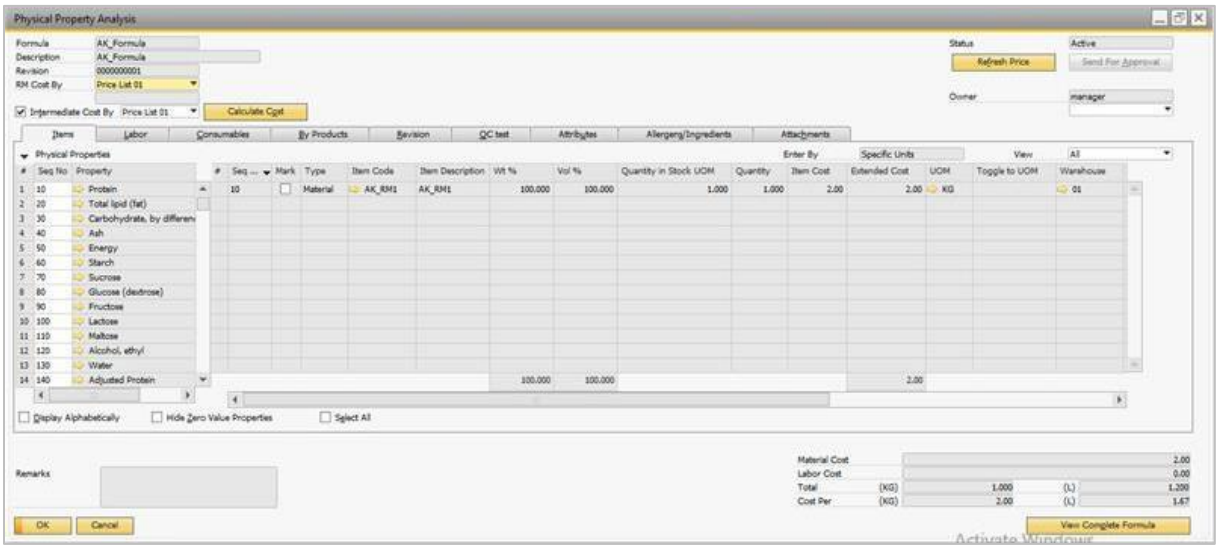
Prior to using *Physical Property Analysis*, some required data must be entered:

1. Unit Conversions for each item that is used as a formula line item or byproduct.
    - If the stock unit of the item is different from the system weight unit, then a conversion should be defined from the stock unit to the system weight unit.
    - If the stock unit of the item is different from the system volume unit, then a conversion should be defined from the stock unit to the system volume unit.
2. Formula Class.
3. Physical Property Formulas with valid Equations and Adjust Equations.
4. Physical Properties by weight, volume, or constant for the materials defined in the *Physical Property Master* screen.
5. The values of the physical properties of items used in a formula.
6. Equations and Adjust Equations in the *Physical Property Equation* screen.

4.1 Header

Use the header portion of the *Physical Property Analysis* screen to enter general information about the formula under analysis, then click the *Find* button. Once you have done so the system will display the formula and its physical properties.

Go To: Laboratory → Physical Property Analysis.



For details about the header fields, please refer to the *BME-B1 18.2 Formulation User Guide*."

An additional formula status exists in the *Physical Property Analysis* module. You can create an *Experimental* formula which is stored separately from formulas created through the *Formulation* and *Product Costing* modules. In these formulas you can add items that are not yet entered in the *Item Master* table. If you later decide to move forward with the *Experimental* formula, there is a right-click or Go To option to *Convert to Development Formula*. This positions the formula for normal processing.

4.2 Items Tab

Use this part of the *Physical Property Analysis* screen to analyze the physical properties of the formula based on the physical properties of the ingredients. You can achieve the desired values for specific physical properties by modifying ingredient quantities.

Physical Properties

Seq. No.: The Sequence Number as defined at the *Physical Property Equation* screen. Non-editable field that displays the sequences of the properties.

Property: The property name as defined at the *Physical Property Master* screen. The sequence is based on the Property Number generated by the application while defining the property in the *Physical Property Master* screen, or by the sequence of the group to which the property is assigned.

Value: Specify the value of the property on a given row on this grid. This field is editable.

Unit:

Enter By: The drop-down menu next to the *Enter By* field provides the following options:

- **Specific Units:** Enter the absolute quantities of raw materials. This option is selected by default while creating a new formula.
- **Weight %:** Enter the raw material quantity as a weight percentage of the total formula weight.
- **Volume %:** Enter the raw material quantity as a volume percentage of the total formula volume.

When you are entering a new formula and start entering data in weight or volume percentage, the system assumes the formula weight or volume as 100 units.

View: Filter data in the *Items* grid by Item Type. Available options are *All*, *Material*, *Text*, and *Boilerplate*.

Grid fields:

#: System-maintained field that is auto-incremented with the addition of every new row.

Seq No: The order of the item in the sequence. Items will be shown in this sequence in the *Formula* and *Production* modules.

Mark: Select the row item(s) whose quantity in the formula can be changed when altering new physical property values.

Type: This field has the following options:

- **Material:** Selecting this option allows you to define the formula items. The lookup provided next to this field retrieves all valid inventory items.

  You can enter a non-inventory item as an ingredient for creating the formula, but the formula cannot become *Active* unless that non-inventory item is maintained in the Item Master.

- **Boilerplate:** When this option is selected, the lookup in the *Item Code* column provides for a boilerplate record. The boilerplate description gets displayed in the *Description* column. The rest of the columns in the grid remain disabled.

- **Text:** When this option is selected, the *Description* column will be enabled. This option lets you enter any text information such as manufacturing or precautionary instructions associated with the formula. All other columns will remain disabled.

Item Code: Specify the type of item to be included in the formula. Available options are *Material*, *Boilerplate*, and *Text*.

You can enter a USDA Code instead of an actual item number. The business logic in BatchMaster ERP with SAP Business One will check the item master and the USDA table for a match before determining whether the item is non-stocked.

Vertical Item Code (not shown)**:** Specify the appropriate item code from the Food Vertical database. The Food and Beverages vertical solution includes the U.S. Department of Food and Agriculture database, which you can use to build your experimental formulas. This column is applicable only if you have installed BatchMaster ERP's Food Vertical solution.

For details about the item tab fields please refer to the *BME-B1 18.2 Formulation User Guide*.

Display Alphabetically: Check this option to display the physical properties in alphabetical order or by Sequence Number.

- If checked, the *Seq. No.* field is disregarded, and the records are arranged in alphabetical order.
- If unchecked, the records will automatically revert to the order defined by the *Seq. No.* field.

Hide Zero Value Properties: Check this option to hide all those properties that are having zero values. The system displays the records according to the *Seq. No.* field.

Select All: Check this option to select all the items displayed on the upper grid.

For details about the other data entry tabs, please refer to the *BME-B1 18.2 Formulation User Guide.*

4.3 Achieving a Target Value for a Property

1. Open or create a development revision of the formula.
2. On the Items tab, specify the ingredients whose quantities should be adjusted by checking the box next to each ingredient.
3. Enter the target value for each physical property, including “0” if necessary.

The system will make changes in the quantities of marked raw materials to meet the targets.

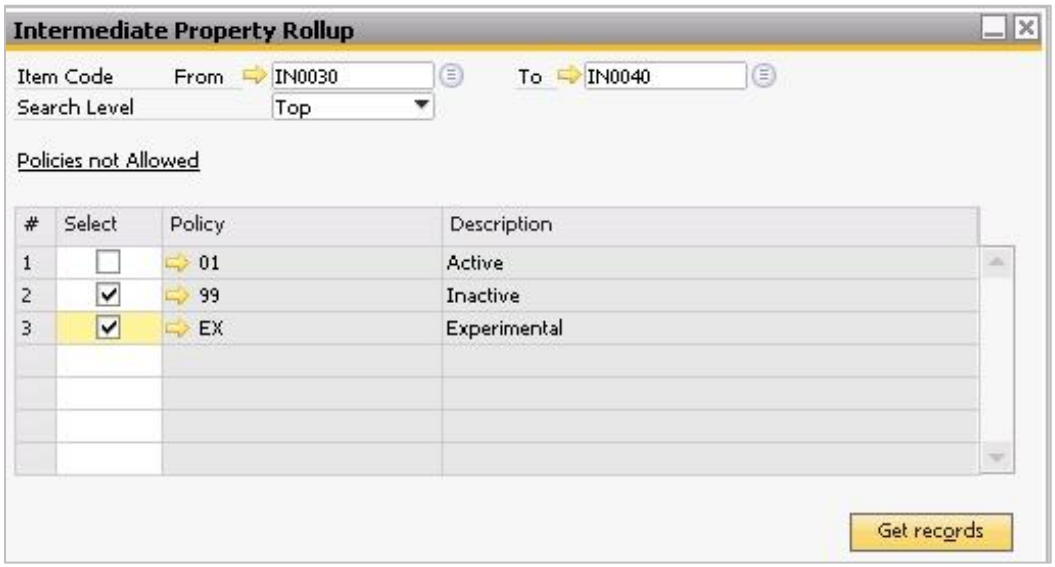
5 LABORATORY UTILITIES

5.1 Intermediate Property Rollup

The *Intermediate Property Rollup Utility* computes intermediate properties based on the properties of their raw materials. This ensures that the intermediate properties are up-to-date.

Go To: Laboratory → Laboratory Utilities → Intermediate Property Rollup.

The Utility's filtering parameters can be used to define the intermediate update range.



Item Code From: The first intermediate ID you want to roll up. If this field is left blank, the system will start with the first intermediate in the database.

Item Code To: The last intermediate ID you want to roll up. If this field is left blank, the system will include all intermediates it finds following the *From* value.

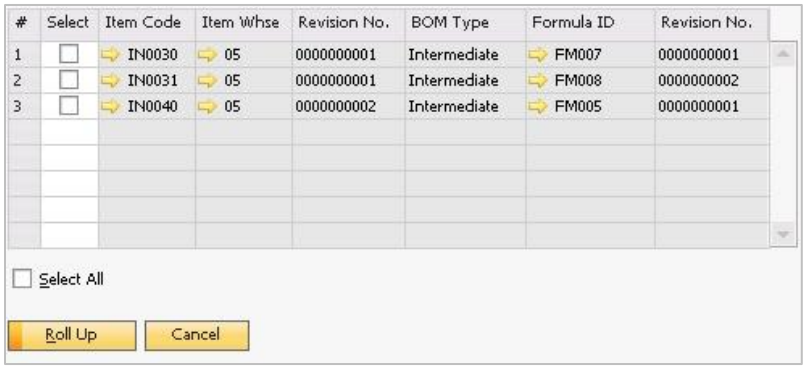
Search Level: Choosing *Top* means the system will update the properties of an intermediate based on its direct formula ingredients. Choosing *Bottom* means the system will explode the formula to the last level and will roll up properties of all the intermediates, from the lowest level intermediate to the top level intermediate.

Policies Not Allowed: The *Formula Policies* (if any) to be excluded from the rollup.

For more information on the use of *Formula Policies* (which are not the same as *Formula Status*) consult the *BatchMaster ERP with SAP Business One 18.2– Formulation User Guide*.

Get Records: Clicking this button will show a list of all the intermediates meeting your filter criteria. You can then select the intermediates you want to roll up.

Multiple revisions of an intermediate will display if they meet your search criteria.



Select: Mark the checkboxes next to the intermediates you want to include in the rollup.

Select All: Select all the *Items* displayed on the grid.

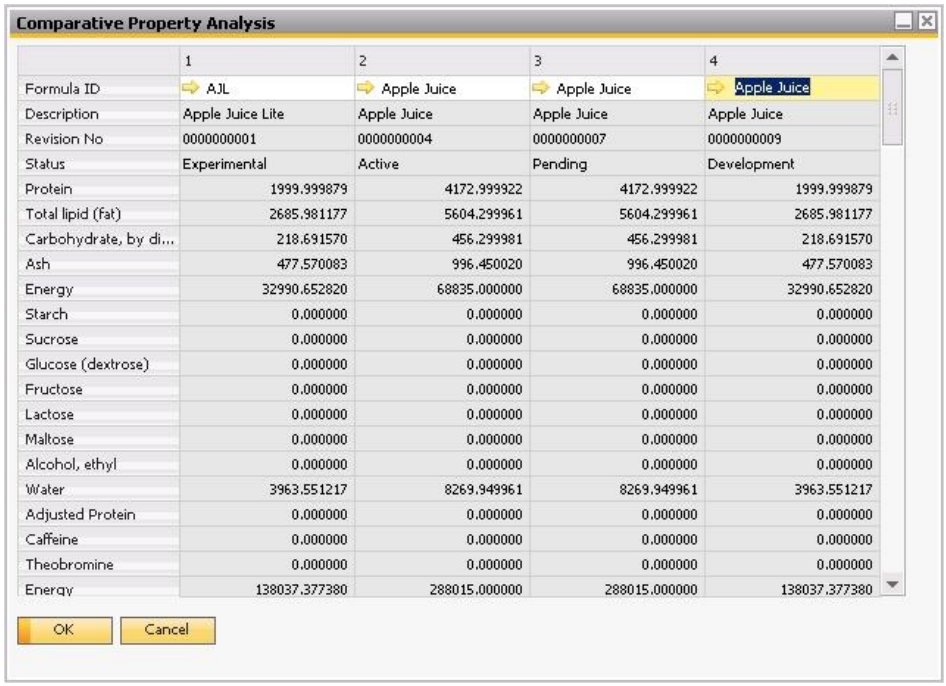
Rollup: Click the *Rollup* button to perform a rollup of the intermediate properties**.**

Cancel: Click the *Cancel* button to close the screen without doing a rollup.

5.2 Comparative Property Analysis

With this function, you can select up to four formulas and display them in columns next to each another for a property-by-property comparison. The four formulas can have different formula IDs and/or be different revisions of the same formula. You can also print a report of the comparison.

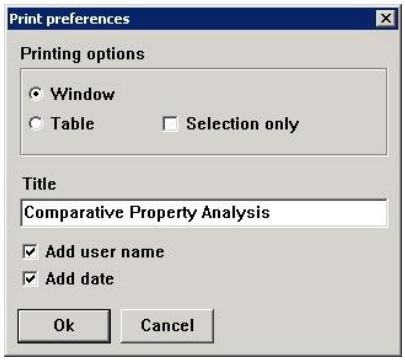
Go To: Laboratory → Laboratory Utilities → Comparative Property Analysis.



Formula ID: Put the cursor in this field and click the *tab* key. A list of formulas and their revision numbers will display. Choose the one you want for each column.

The properties of the formulas you selected will appear in their respective columns. Note that you may need to scroll down to view all the properties!

To print the property comparison, click the *Print* button on the toolbar. Make any report selection changes (defaults are shown) then click the *OK* button.



6 NUTRITIONAL LABELING (WITH FOOD VERTICAL ONLY)

A key requirement of food manufacturers is the creation and generation of nutritional labels that adhere to USDA standards. BatchMaster ERP's *Nutritional Labeling* feature allows you to analyze the nutritional content of formula ingredients using a standard USDA ingredients database. This helps you label your products in a way that meets the compliance standards of the US labeling authority.

To generate such labels in the system, you need to:

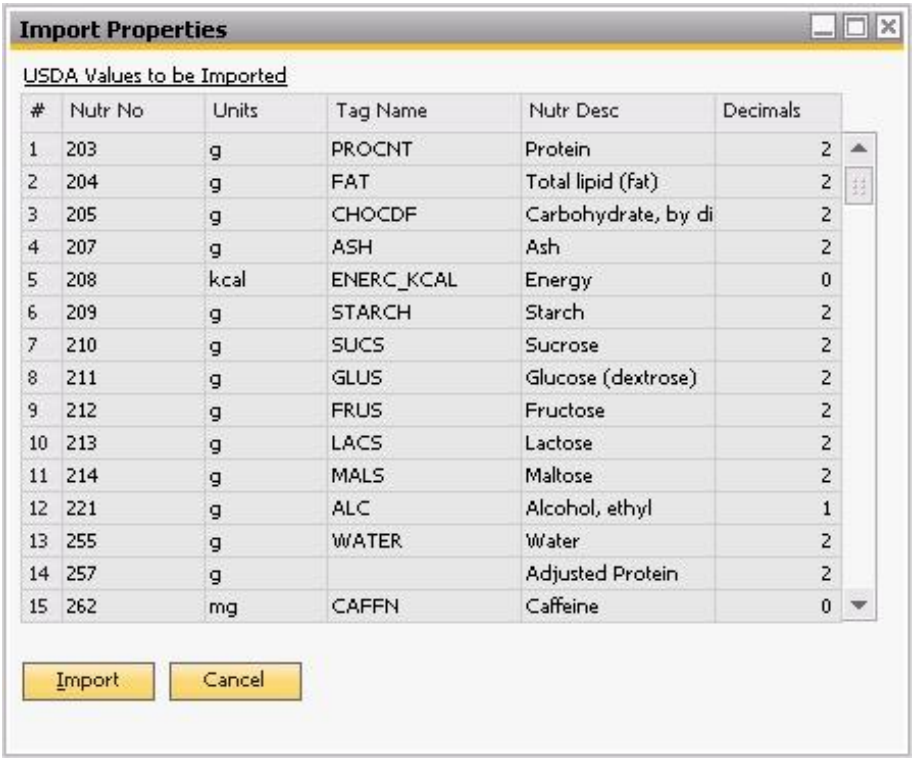
- Import predefined properties such as protein, fat, and carbohydrate from the USDA database.
- Import physical property formulas that define the equation for calculating the value of each property.
- Map the USDA item key with the item key in the system.
- Import properties for the mapped items.
- Establish Profile Masters.

6.1 Nutritional Labelling Master Files

6.1.1 Import Properties

The USDA database contains a number of predefined properties. These correspond to the *Physical Properties* discussed in Section 3.1. Using the *Import Properties* function, you can import these properties to your system database.

Go To: Laboratory → Nutritional Labeling → Import Properties.



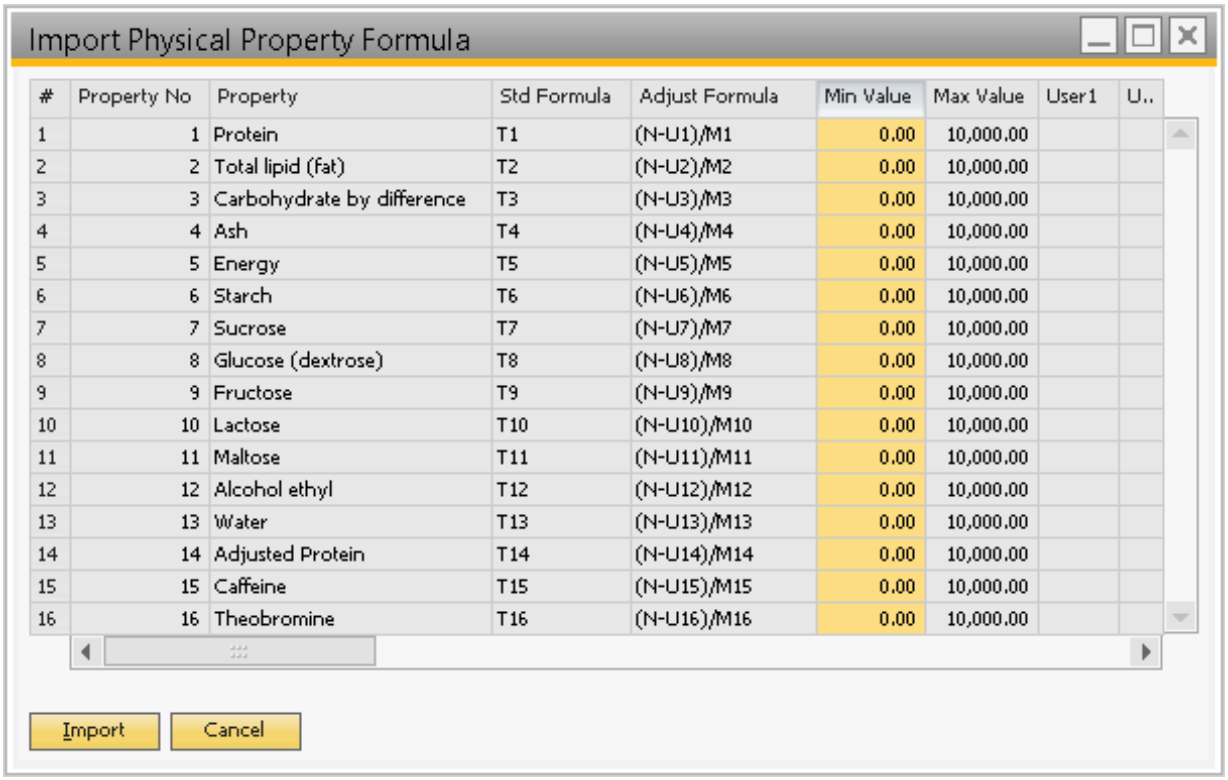
Click the *Import* button to import or *Cancel* to exit the utility.

6.1.2 Import Physical Property Formula

The physical property formula in the USDA database is equivalent to the *Physical Property* equation discussed in Section 3.3, which defines the equation to calculate the value of a physical property and the equation to adjust the value of a property based on a target value.

Using the *Import Physical Property Formula* function, you can download the predefined formulas from the USDA database to the *Physical Property* equations in BatchMaster ERP.

Go To: Laboratory → Nutritional Labeling → Import Physical Property Formula.



Click the *Import* button to import or *Cancel* to exit the utility.

6.1.3 Import (Map) USDA Data

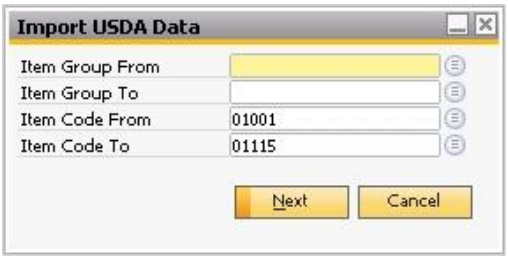
You have now imported predefined properties and formulas from the USDA database. The next step is to associate them with your items.

The items in your BatchMaster ERP database may have identification codes according to your company norms. Most likely, these item codes in BatchMaster ERP will be different from the item codes for the same items in the USDA database, therefore you need to map your item code with the item code in the USDA database to utilize the properties and formulas imported from the USDA database.

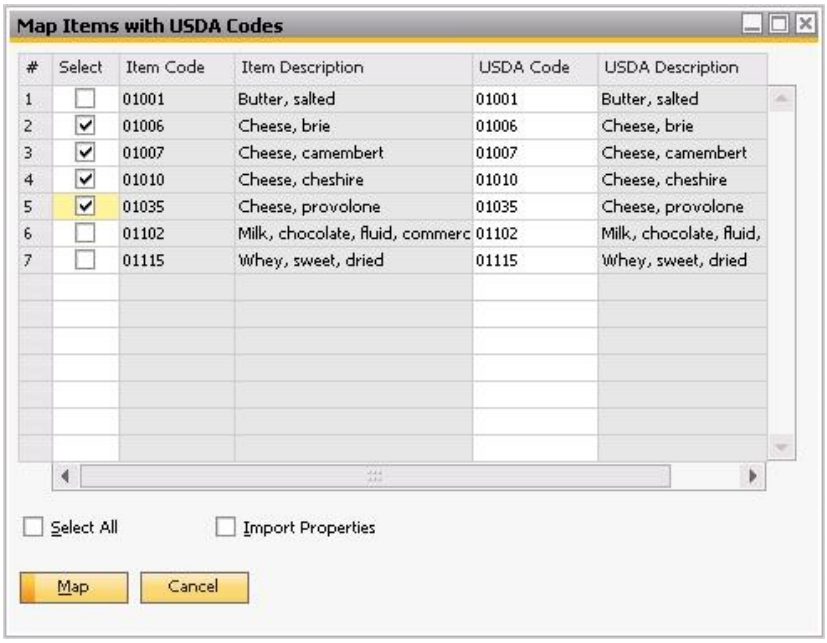
Go To: Laboratory → Nutritional Labeling → Import USDA Data.

Mapping item codes in BatchMaster ERP with item codes in the USDA database is a two-step process:

1. Use the *Import USDA Data* screen to filter items for which you want to do mapping. You can filter items based on their item group and/or item codes. Then click the *Next* button to continue.



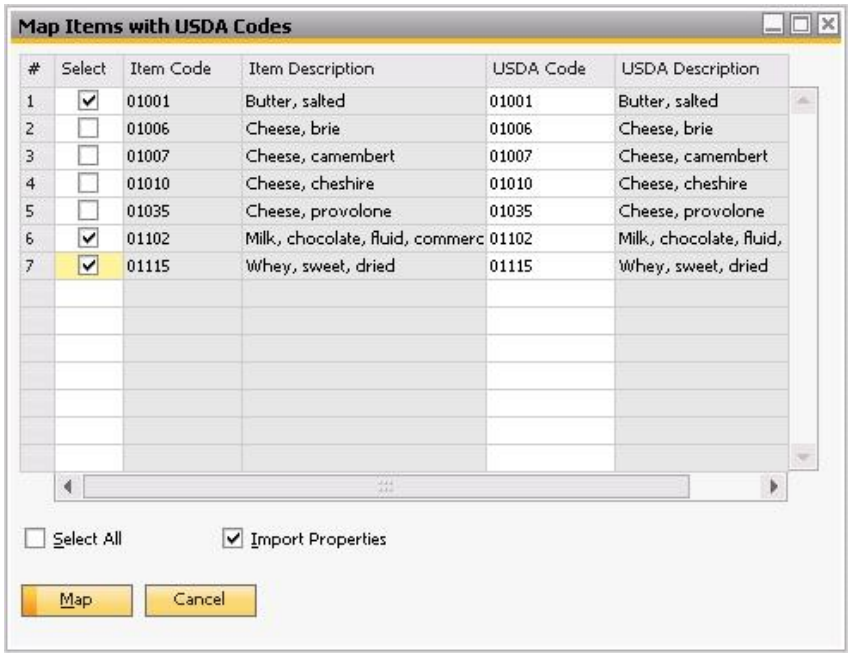
2. You can use the *Map Items with USDA Codes* screen to specify which items you want to map and whether or not to import their physical properties at the same time. In the example below, we are going to map all the 'cheese' items but not import their properties.



(Round 1)

Map: Click to link your internal item codes with their respective USDA item codes.

Later we decide to map the 'non-cheese' items and do the properties import:



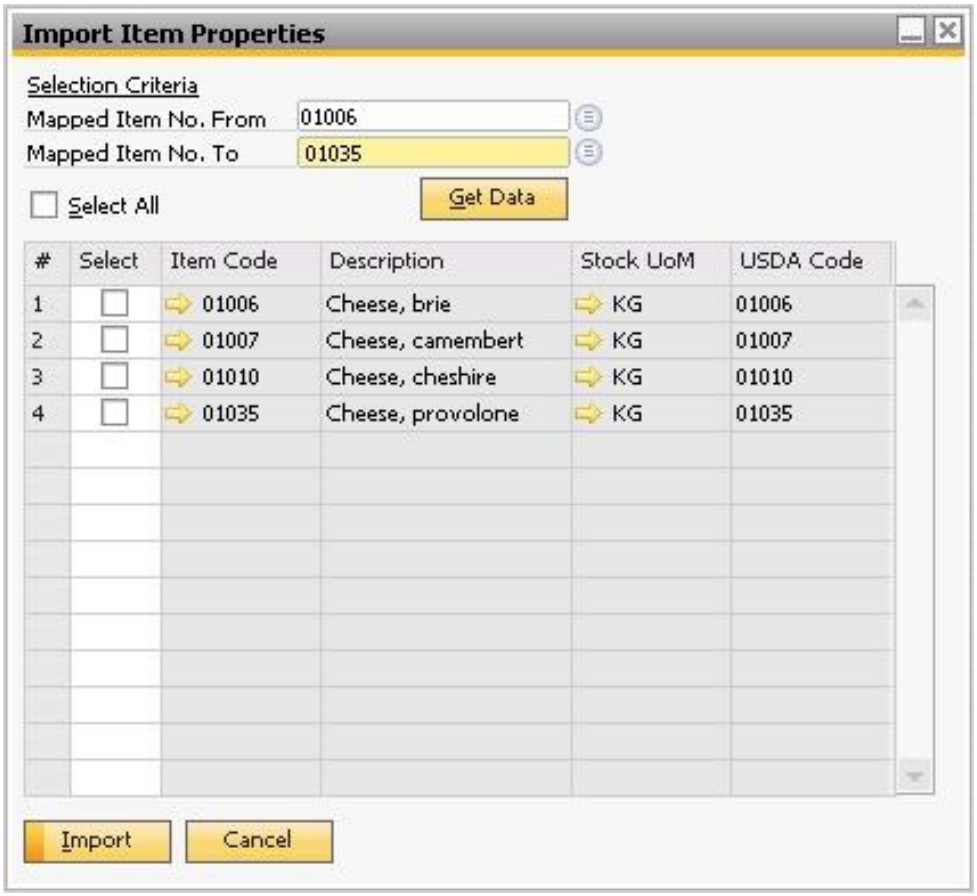
(Round 2)

Map: Click the *Map* button to link your internal item codes with their respective USDA item codes.

6.1.4 Import Item Properties

Now our manager says it is time to import the properties for the 'cheese' items. We must perform the import using the *Import Item Properties* screen. This is an alternative to the *Import Properties* checkbox on the *Map Items with USDA Codes* screen.

Go To: Laboratory → Nutritional Labeling → Import Item Properties.



You cannot use this function for items that have not been mapped to USDA codes. You must do the mapping first.

Mapped Item To/From: The range of items for which you want to import properties.

Get Data: Click to fill the grid with all the item numbers in the range you entered.

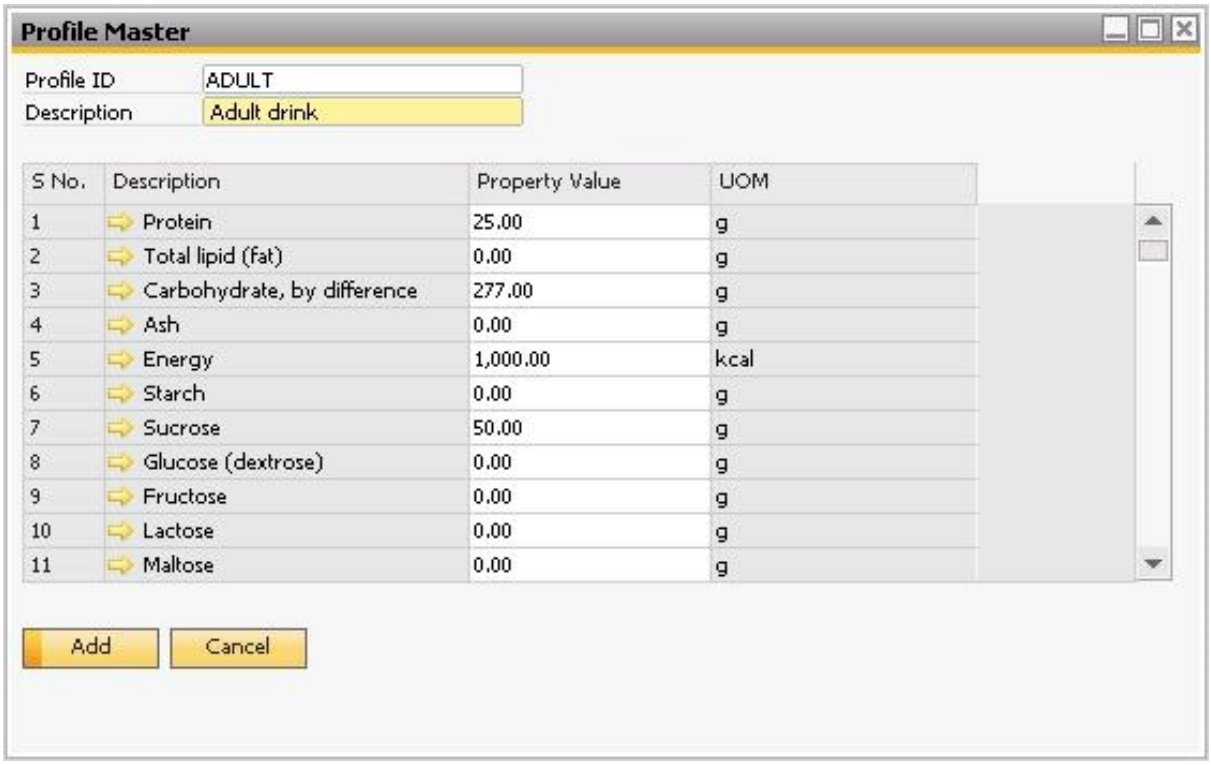
Select All: Click to flag all the grid items as import targets (or check/uncheck the boxes one by one).

Import: Click to import the physical properties from the USDA database.

6.1.5 Profile Master

As a food manufacturer, you may produce food products for different groups of people. For instance, a company can manufacture a health drink specific for adults and another health drink specific for children. In such cases, the nutritional properties of the formulas will likely be different. Using the Profile Master screen, you can create two different property profiles, one for adults and another for children.

Go To: Laboratory → Nutritional Labeling → Profile Master.



Profile ID: Enter a unique identification key.

Description: Enter a description of the profile.

Property Value: Enter the value for each property.

Add/Update: Click the *Add/Update* button to save your edits.

Cancel: Click *Cancel* to exit the utility.

6.2 Nutritional Labeling

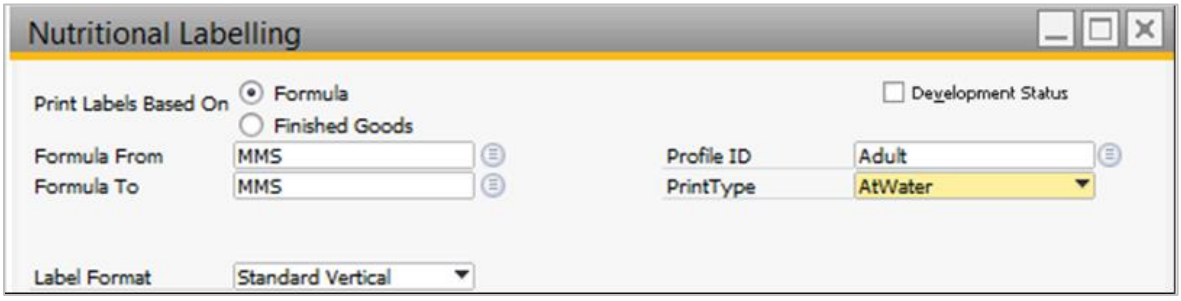
Now that you have all the necessary information (USDA codes for items, physical properties of the items, and the equations for the properties) you can print your labels. Using the *Nutritional Labeling* screen, you can print labels in fourteen different FDA formats. Each format meets a specific requirement.

The report offers two distinct calculation methods, namely 4-4-9 and Atwater, which are FDA approved methods for deriving food energy values. For Nutritional Labelling, the U.S. Food and Drug Administrator (FDA) allows calorie content to be calculated by either the Atwater method or a procedure using 4, 4 and 9 calories per gram of protein, fat and carbohydrate (CHO) respectively.

- 4-4-9 method: if this option is selected then calories will be calculated as 4 times Proteins + 4 times Carbohydrates + 9 times Fat
- Atwater method: Different foods have different caloric contributions per gram. For the Atwater method, properties of Protein, Carbohydrate and Total fat for each material in the recipe are calculated as per their specific caloric contribution per gram (imported from the standard food database). If this option is selected, calories will be calculated as the summation of (Fat*Factor + Protein*Factor + Carbohydrate*Factor) all the ingredients.

Filter criteria can be set for each label.

Go To: Laboratory → Nutritional Labeling → Nutritional Labeling.



Print Labels Based On: Select either you wish to print the label for *Formula* or *Finished Goods*.

From/To: Specify an appropriate range of selected formulas/finished goods for the label that needs to be printed.

Development Status: Select either you wish to print the label for *Formula* or *Finished Goods* with Development Status. By default it is unchecked, if checked, the system will:

- Retrieve Finished Goods (FG) and Bill of Materials (BOM) data that are in "Development" status.
- Fetch only the top-most revision number for these developmental formulas.

When *you select the relevant BOM and Formula in developmental status. The report is generated based on the selections with the Development watermark.*

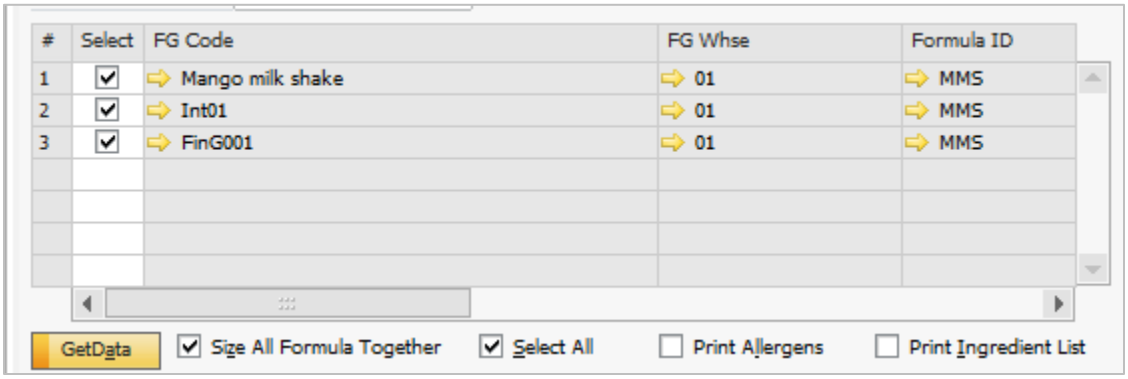
Profile ID: Select the identifier that ensures the correct nutritional information is associated with a specific recipe.

Print Type: Select either you wish to print and calculate the label for 4-4-9 or Atwater (by default this option is selected if *Development Status* is checked).

Label Format: Use the dropdown to select the format in which the report needs to be printed.

Calculation on: Choose the method by which the formula/finished good property needs to be calculated. The available method options are 4-4-9 and Atwater.

Get Data: Click to populate the grid with the records that match your selection criteria.



Select: Click the checkbox in this column to select/deselect a specific row.

Size All Formula Together: Click to size all selected formulas based on the specified serving size.

Select All (default)**:** Click to select/deselect records in the grid.

Print Allergens: Click to have allergens print on the labels.

Print Ingredient List: Click to print ingredients on the labels.

Unit: Enter the serving unit of measure.

Serving Size: Enter the serving size based on the unit of measure listed above. The System sizes the formula on the basis of the specified serving size and calculates the nutrient values.

Serving\Container: Enter the number of servings per container.

Serving Text: Enter any additional text to print on the label.

Process: Click the *Process* button to print labels.

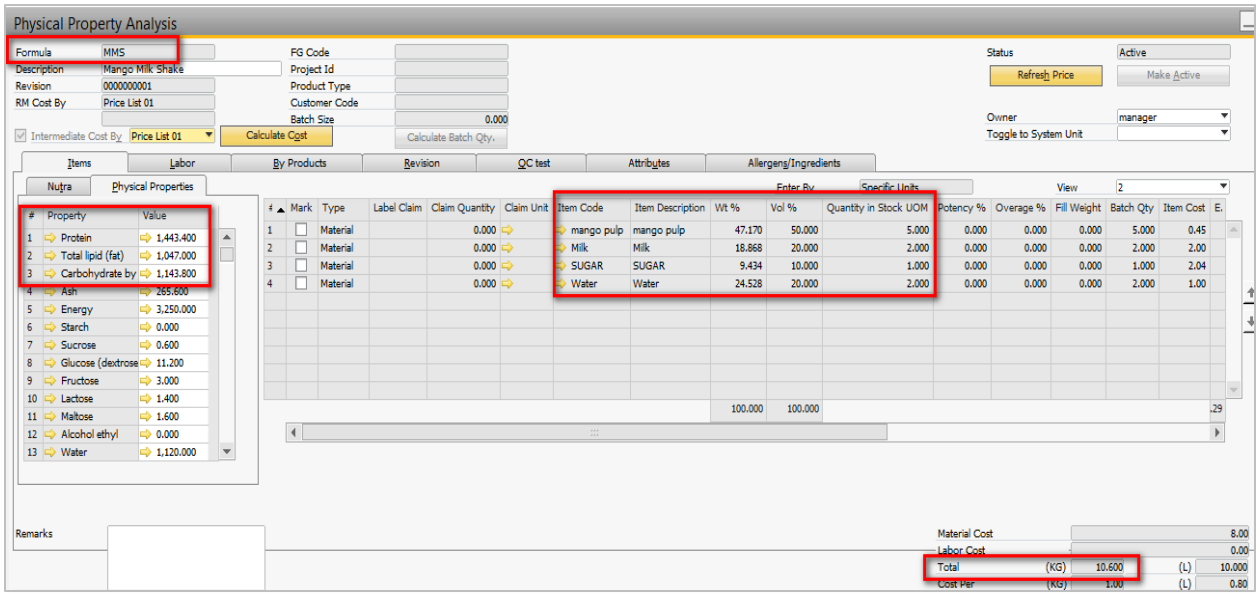
Cancel: Click *Cancel* to exit the utility.

6.2.1 Understanding Calories calculations in Nutritional Labeling

Say we have a formula MMS with its ingredients Mango pulp, Milk, Sugar and Water. Let's print the Nutritional Labeling report for the formula with both 4-4-9 and Atwater calculation methods and understand how the calories value is calculated and displayed on the report.

6.2.1.1 Using the 4-4-9 method

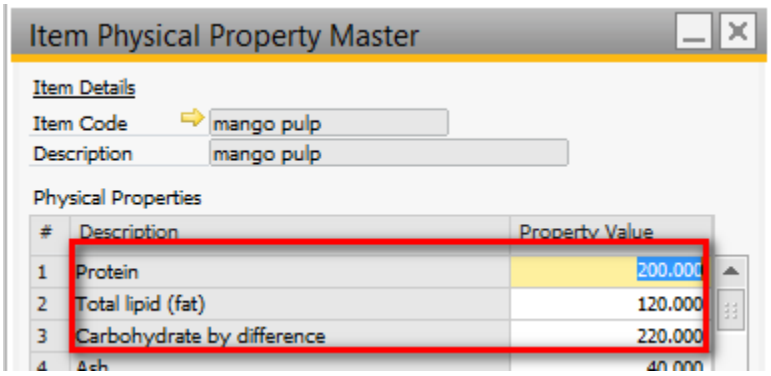
Before printing the report, let's look at the formula MMS on the Physical property analysis screen.



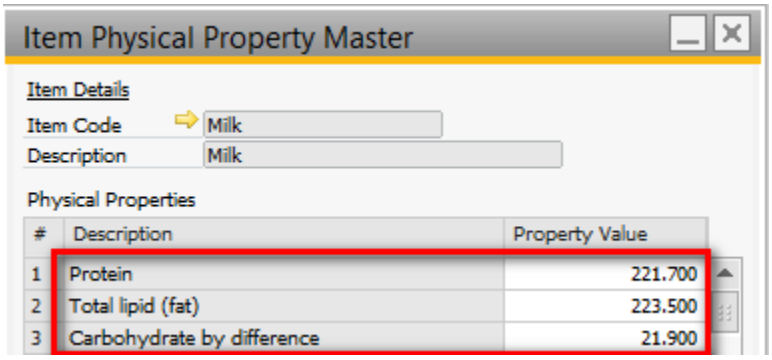
The Physical properties values displaying in the left section are the summation of property values of all the ingredients.

Let's observe the physical properties value of formula ingredients on the Item Physical Property Master screen.

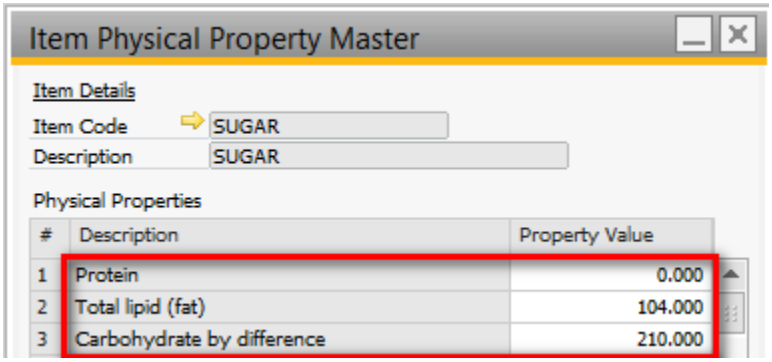
For the Item Mango Pulp, the property values are:



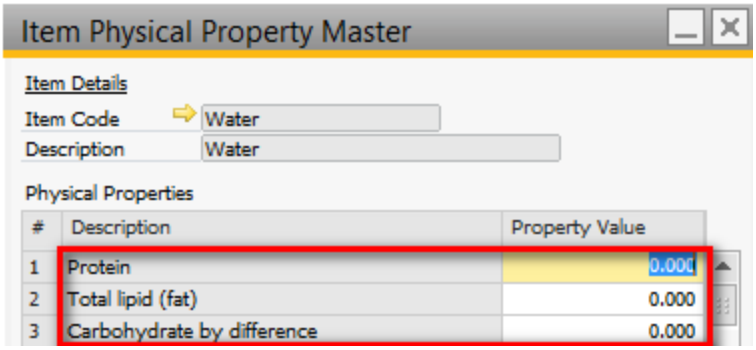
For the Item Milk, the property values are:



The property values of the Item Sugar are:



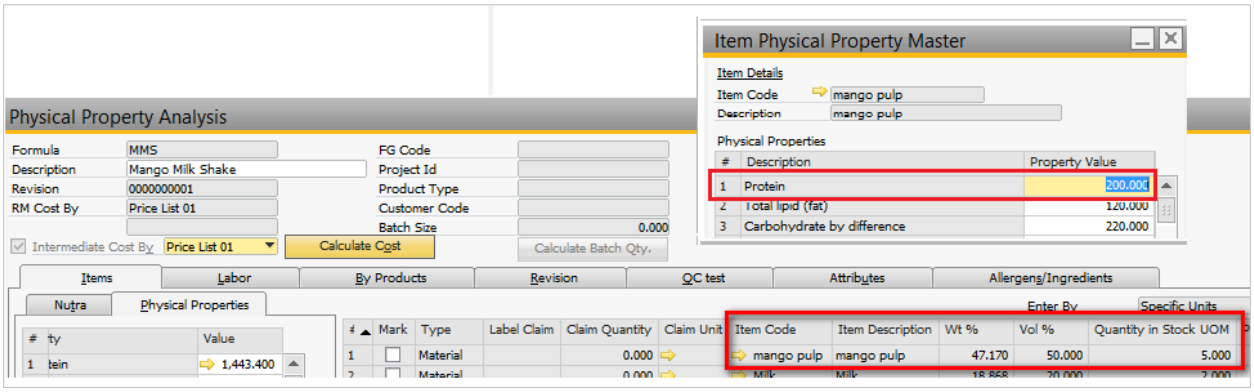
The property values of the item Water are:



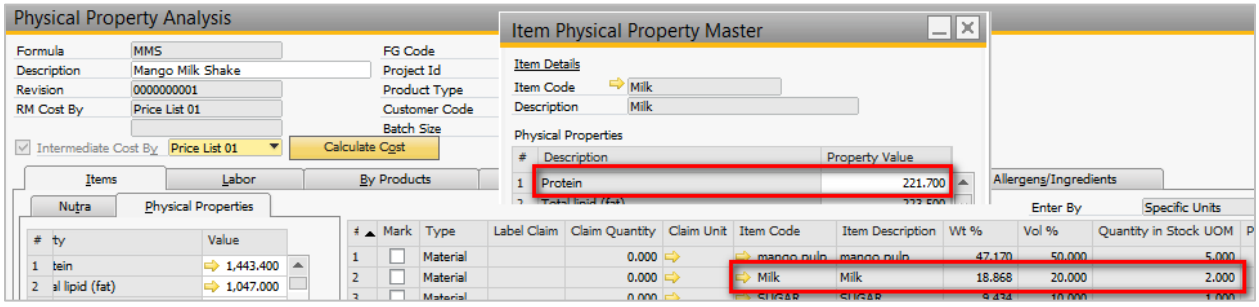
Now, let's calculate the protein value in the formula:

Protein value of Mango pulp in formula = Property value of Protein on the Item Physical Property Master Screen * Item Qty in stock UOM present in the formula.

= 200 * 5 = 1000



Similarly, the Protein value of the Item Milk in the formula will be:



= 221.700 * 2 = 443.4

As Protein is not available in the formula items Sugar and Water, thus the total property value of the Protein in the formula MMS will be:

1000 + 443.4 = 1443.400

Similarly, the property value of the Carbohydrates will be:

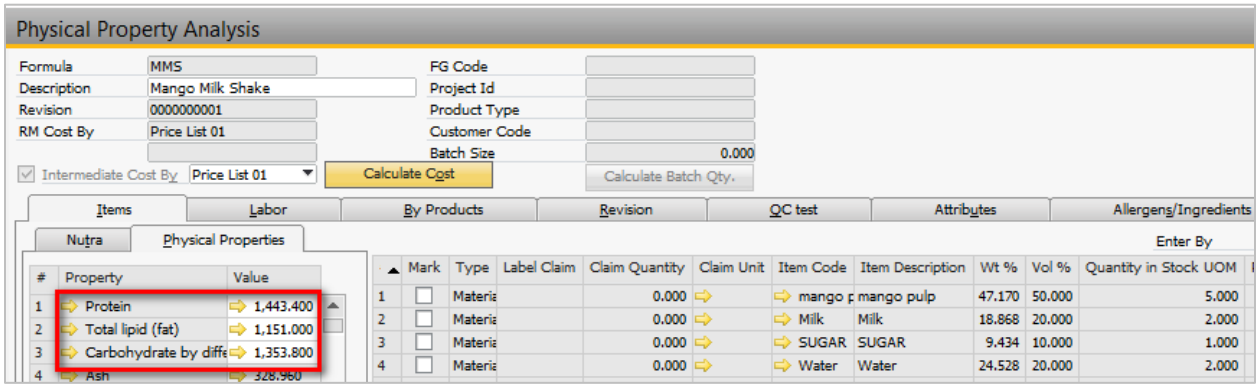
220 *5 + 21.9 * 2 + 210 * 1 + 0

= 1100 + 43.8 + 210 = 1353.8

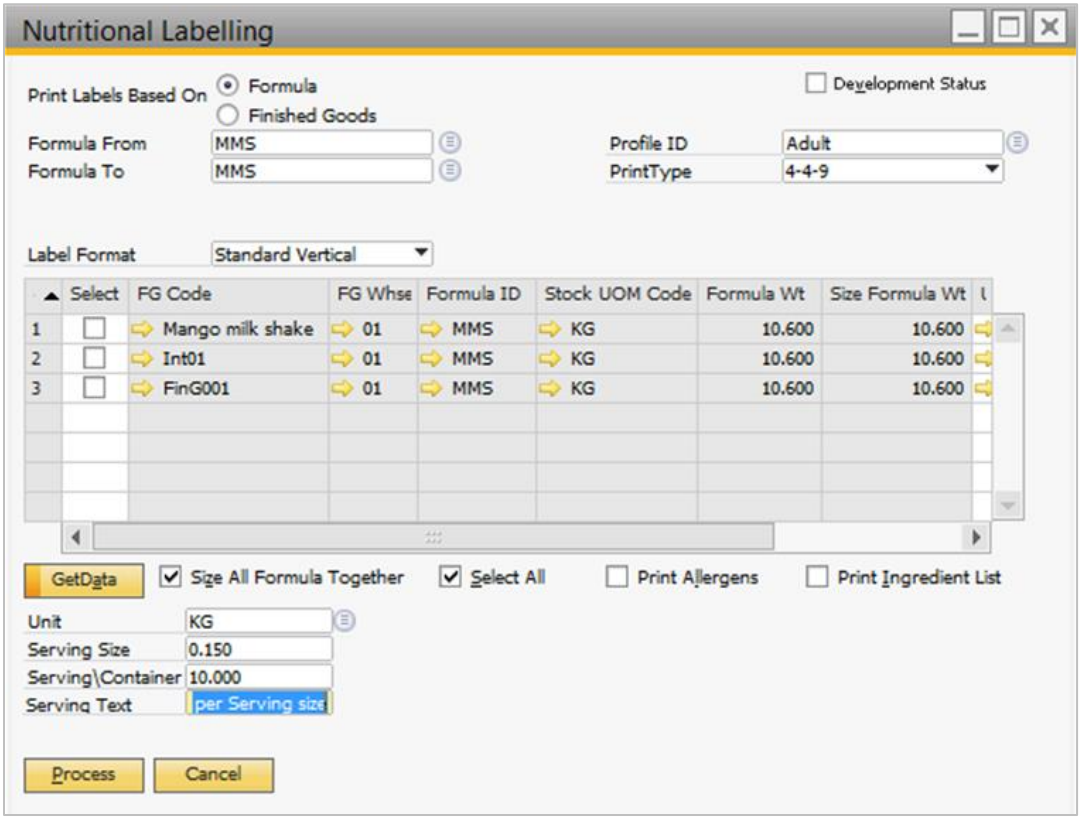
Similarly, the total property value of the Fat in formula item will be:

120*5 + 223.500*2 + 104*1+0

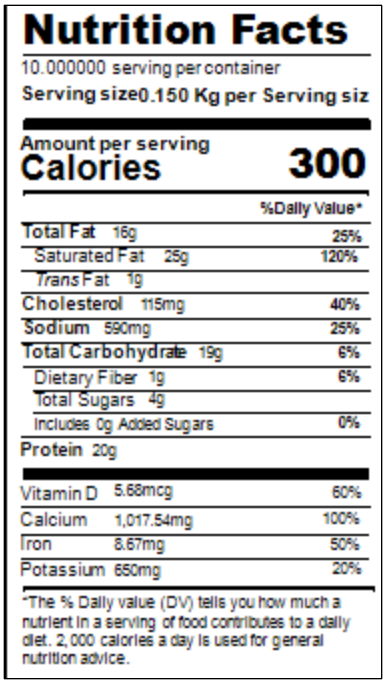
= 600 + 443.400+ 104 = 1151



Now let's print the Nutritional Labeling report 4-4-9 for the formula item MMS.



The report is printed as below.



Nutrition Facts

10.000000 serving per container

Serving size0.150 Kg per Serving siz

Amount per serving

Calories **300**

		%Daily Value*
Total Fat	16g	25%
Saturated Fat	25g	120%
Trans Fat	1g	
Cholesterol	115mg	40%
Sodium	590mg	25%
Total Carbohydrate	19g	6%
Dietary Fiber	1g	6%
Total Sugars	4g	
Includes 0g Added Sugars		0%
Protein	20g	
Vitamin D	5.68mcg	60%
Calcium	1,017.54mg	100%
Iron	8.67mg	50%
Potassium	650mg	20%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Let's understand how Protein, Carbohydrates and Total Fat displaying in the report are calculated.

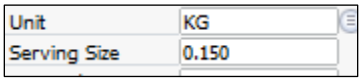
Protein

The Protein value obtained from the Physical Property Analysis screen is 1443.400.

Note that this is the total protein value available in the 10.6 KG formula (Formula weight = 10.6 Kg)

Thus, in 1 Kg, Protein value will be = 1443.400/10.6 = 136.

The nutrient property value is printed on the report on the basis of the specified Serving size. In this case, the specified Serving size is 0.150 Kg (Nutritional Labeling Screen)



The Protein value in 1 Kg = 136

Thus, in 0.150 Kg serving size, it will be = 136 * 0.150 = 20.42 = 20 (Rounded)

Carbohydrates

Similarly, the property value of the Carbohydrates will be:

220 *5 + 21.9 * 2 + 210 * 1 + 0

= 1100 + 43.8 + 210 = 1353.8

Thus 1353.8 Carbohydrates value is available in the 10.6 Kg formula.

In 1 Kg, the value would be = 1353.8/10.6 = 127.71

For the Serving size of 0.150 Kg, the carbohydrates value will be 127.71*0.150 = 19.15

= 19 (Rounded)

Fat

Similarly, the total property value of Fat in the formula item will be:

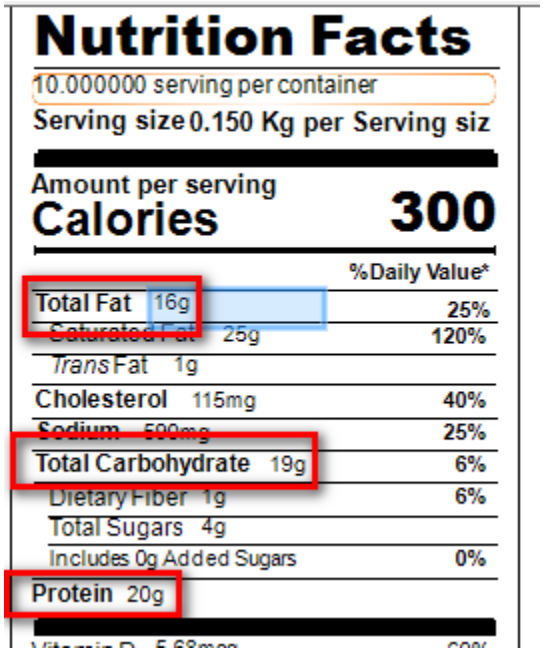
120*5 + 223.500*2 + 104*1+0

= 600 + 443.400+ 104 = 1151

Thus 1151 Fat value is available in the 10.6 Kg formula.

In 1 Kg, fat would be = 1151/10.6 = 108.58

For the Serving size of 0.150 Kg, the fat value will be 108.58*0.150 = 16.28 = 16 (Rounded)



Now, lets calculate total calorie value available in the serving size.

Total Calories = 4 times Protein + 4 times Carbohydrate + 9 times Fat

= 4 * 20 + 4 * 19 + 9 *16

= 80 + 76 + 144 = 300

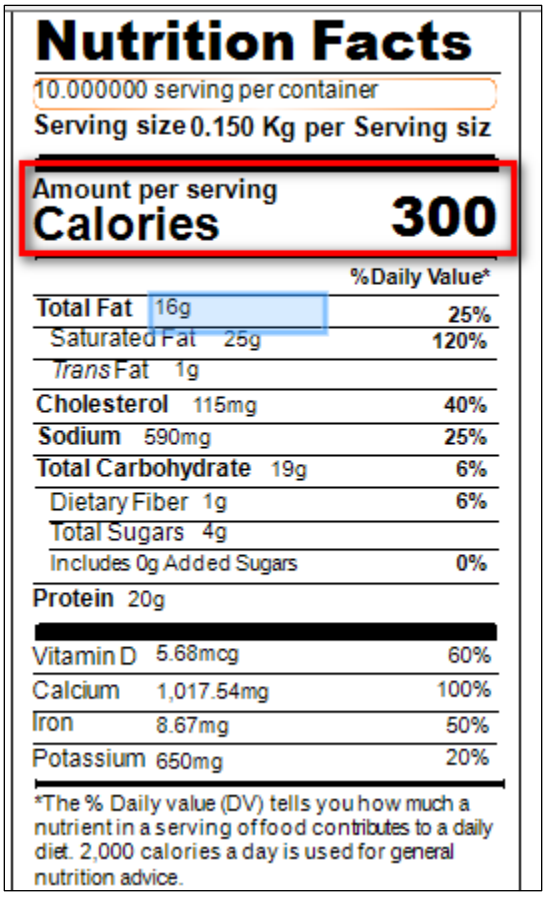
Rounding Rules for Calorie Calculations:

< 5 - express as zero

≤ 50 calories - express to nearest 5 calorie increment

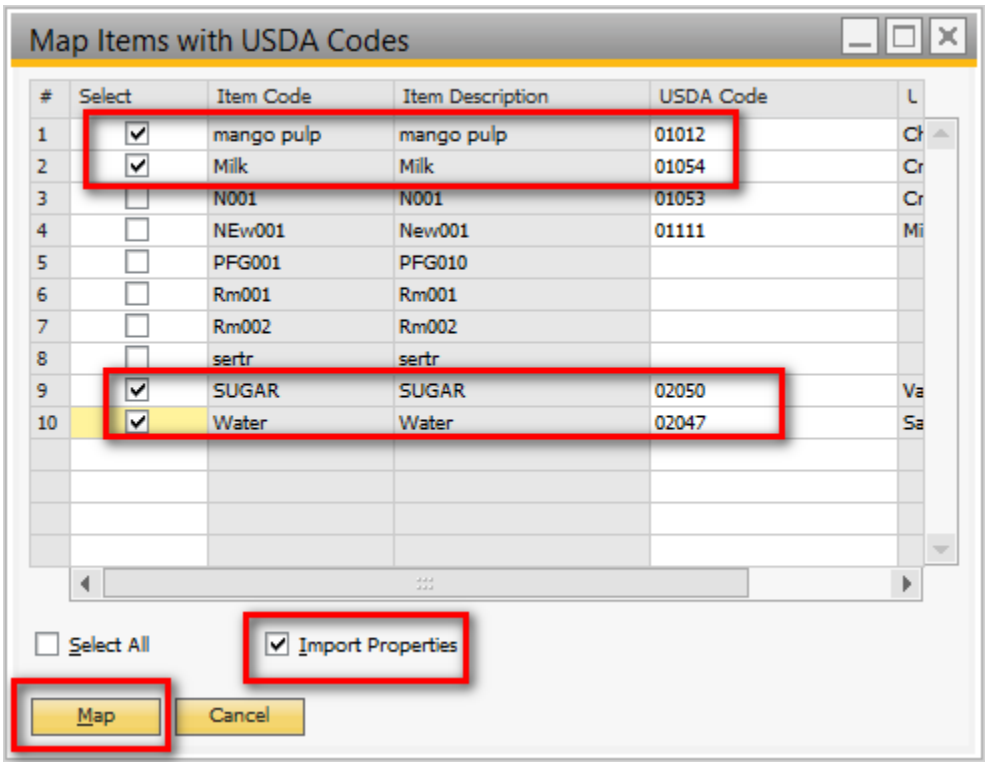
> 50 calories - express to nearest 10 calorie increment

Therefore 300 is correct.



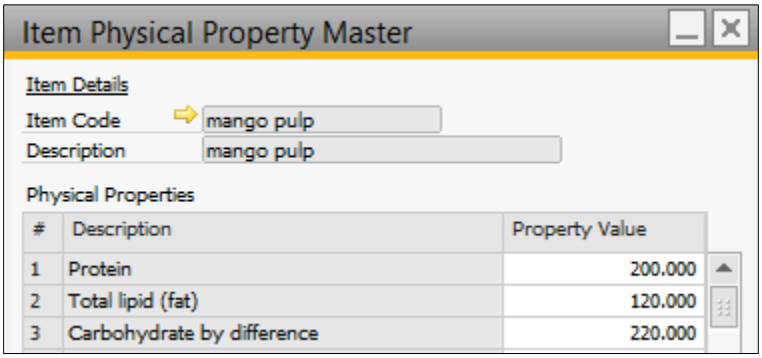
6.2.1.2 Using the Atwater method

For the Atwater method, properties of Protein, Carbohydrate and Total fat for each material in the recipe are calculated as per their specific caloric contribution per gram (available in the standard food database). To obtain these values, you are required to map the formula items with an appropriate USDA key, from the *Import USDA Data* screen.

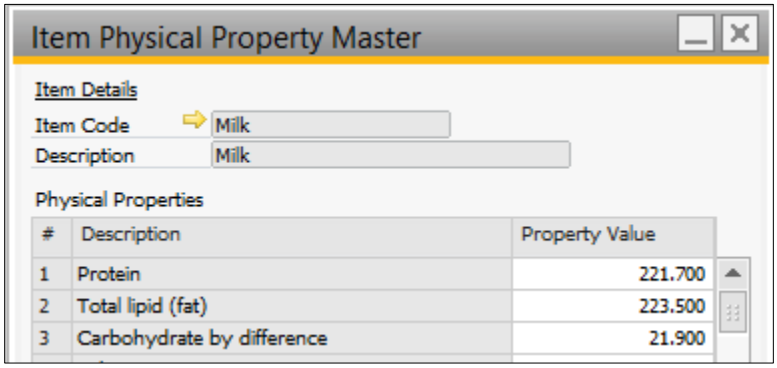


When you choose the *Import Properties* option on the Map Items with USDA codes screen, an exact property value of the mapped USDA code is imported and can be viewed on the Item Physical Property Master screen. These values may be different to those used for the 4-4-9 example.

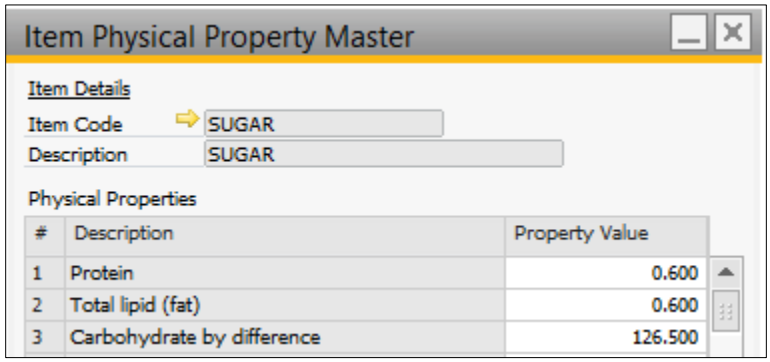
For the Item Mango Pulp, the property values are:



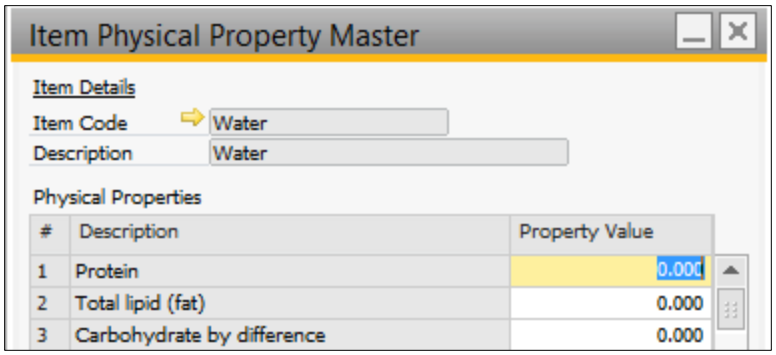
For the Item Milk, the property values are:



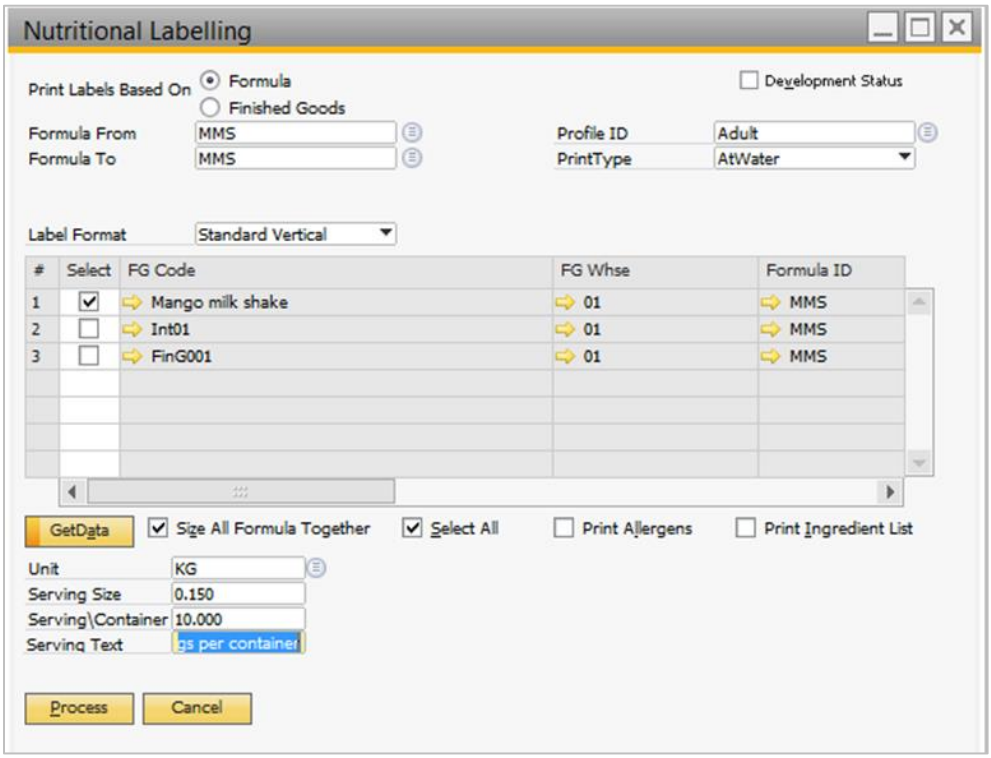
For the Item Sugar, the property values are:



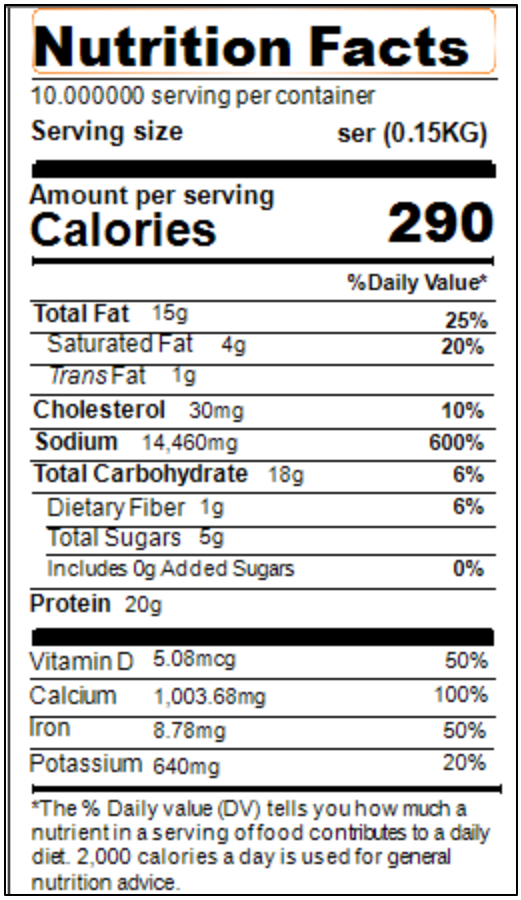
For the Item Water, the property values are:



Let's open the Nutritional Labeling screen and enter the appropriate details to print the report for the AtWater type.



Click the *Process* button to print the report.



Nutrition Facts

10.000000 serving per container

Serving size **ser (0.15KG)**

Amount per serving

Calories **290**

		%Daily Value*
Total Fat	15g	**25%**
Saturated Fat	4g	**20%**
Trans Fat	1g	
Cholesterol	30mg	**10%**
Sodium	14,460mg	**600%**
Total Carbohydrate	18g	**6%**
Dietary Fiber	1g	**6%**
Total Sugars	5g	
Includes 0g Added Sugars		**0%**
Protein	20g	
Vitamin D	5.08mcg	50%
Calcium	1,003.68mg	100%
Iron	8.78mg	50%
Potassium	640mg	20%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Calculation

Let's understand how Protein, Carbohydrates and Total Fat displaying in the report are calculated.

Total Protein = Protein value in Mango pulp + Milk + Sugar + Water

Protein value of Mango pulp in the formula = Property value of Protein on the Item Physical Property Master Screen * Item Qty in stock UOM present in the formula

= 200 * 5 = 1000

Similarly, Protein value of the item Milk in the formula will be

= 221.700 * 2 = 443.4

Similarly, Protein value of the Item Sugar in the formula will be

= 0.6 * 1 = 0.6

Protein is not available in the formula item Water, thus the value is 0

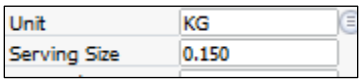
Thus the total property value of the Protein in the formula MMS will be:

1000 + 443.4 + 0.6 + 0 = 1444

Note that this is the total protein value available in a 10.6 KG formula (Formula weight = 10.6 Kg)

Thus, in 1 Kg, Protein value will be = 1444/10.6 = 136.

The nutrient property value is printed on the report on the basis of the specified Serving size. In this case, the specified Serving size is 0.150 Kg (Nutritional Labeling Screen).



The Protein value in 1 Kg = 136

Thus, in 0.150 Kg serving size, it will be = 136 * 0.150

= 20.42 =20 (Rounded)

Total Carbohydrates

Similarly, the property value of the Carbohydrates will be:

220*5 + 21.9*2 + 126.5*1 + 0

= 1100 + 43.8 + 126.5 = 1270.3 (1270 Rounded)

Thus 1270 Carbohydrate value is present in the 10.6 Kg formula.

In 1 Kg, the Carbohydrate value would be = 1270/10.6

= 119.81

For the Serving size 0.150 Kg, the carbohydrates value will be 119.81*0.150

= 17.97 = 18 (Rounded)

Total Fat

Similarly, the total property value of Fat in the formula items will be:

120*5 + 223.500*2 + 0.600*1+ 0

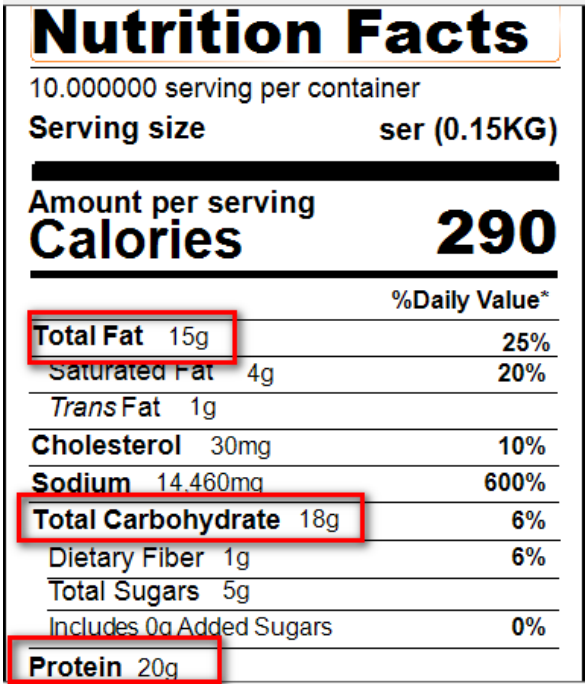
= 600 + 443.400 + 0.600 = 1044

Thus 1044 Fat value is present in the 10.6 Kg formula.

In 1 Kg, fat would be = 1044/10.6 = 98.4

For the Serving size 0.150 Kg, the fat value will be 98.4*0.150

= 14.76 = 15 (Rounded)



Nutrition Facts

10.000000 serving per container

Serving size **ser (0.15KG)**

Amount per serving

Calories **290**

	%Daily Value*
Total Fat 15g	**25%**
Saturated Fat 4g	**20%**
Trans Fat 1g	
Cholesterol 30mg	**10%**
Sodium 14,460mg	**600%**
Total Carbohydrate 18g	**6%**
Dietary Fiber 1g	**6%**
Total Sugars 5g	
Includes 0g Added Sugars	**0%**
Protein 20g	

Now let's calculate the total Calories

The Atwater calculation method uses exact factor values of Protein, fats and carbohydrates. The System picks these factor values from the BMM_FOOD_DES table.

Our formula items Mango pulp, Milk, Sugar and Water are mapped with the following USDA codes and their factor values in BMM_Food_Desc table are as follows.

Item Key	USDA	Pr_Factor	CHO_Factor	Fat_Factor
Mango Pulp	01012	4.27	3.87	8.79
Milk	01054	4.27	3.87	8.79
Sugar	02050	2.4	3.9	8.37
Water	02047	Null	Null	Null

For a Factor Value of Null, the system will use the 4-4-9 factor

Amount per serving calories will be calculated as:

Calorie = Protein*factor value + Fat*factor value + Carbohydrate*factor value

Mango Pulp

Thus, Calorie in Item Mango pulp is = Protein*Factor + Carbohydrate*Factor + Fat*Factor

= 200*4.27 + 220*3.87 + 120*8.79

= 854 + 851.4 + 1054.8 = 2760 Calories (Value is rounded off)

Thus, in 10.6 Kg, Mango pulp Calories will be 2760

For 1 Kg, it would be 2760/10.6= 260.37 calories

For the Serving size 0.150 Kg, the value will be 260.38*0.150 = 39.06

Thus in 1 serving of Mango pulp, there are 39.06 calories.

Thus for a Serving Size of 0.15 Kg in 1 kg of Mango pulp, there are 39.05 calories.

As our formula contains 5 Kg of Mango pulp, calorie value will be 39.05 times 5 = 195.28

Milk

Similarly Calorie in item Milk = Protein*Factor + Carbohydrate*Factor + Fat*Factor

= 221.700*4.27 + 21.900*3.87 + 223.500*8.79

= 946.659 + 84.753 + 1964.565 = 2996 calories (Value is rounded off)

Thus, in 10.6 Kg, Milk Calorie value will be 2996

For 1 Kg, it would be 2996/10.6 = 282.64 calories

For the Serving size 0.150 Kg, the value will be 282.64*0.150 = 42.4

Thus in 1 serving of Milk, there are 42.4 calories.

Thus for a Serving Size of 0.15 Kg in 1 kg of Mango pulp, there are 42.4 Calories

As our formula contains 2 Kg of Milk, so calorie value will be 2*42.4 = 84.79

Sugar

Similarly, Calories in the item Sugar

= 0.6*2.4 + 126.5*3.9 + 0.6*8.37

= 1.44 + 493.35 + 5.022 = 499.8 calories (Value is rounded off to 500)

Thus, in 10.6 Kg, Sugar calorie will be 500

For 1 Kg, it would be 500/10.6= 47.17 calories

For the Serving size 0.150 Kg, the value will be 47.17*0.150 = 7.08

Thus for a Serving Size of 0.15 Kg in 1 kg of Sugar, there are 7.08 Calories.

As our formula contains 1 Kg of Sugar, so calorie value will be 7.08

Water

Similarly, Calorie in Water = Protein*Factor + Carbohydrate*Factor + Fat*Factor = 0

Thus there are 0 calories in the item Water.

Total Calorie

Now, the Total Calories is a summation of individual items calorie

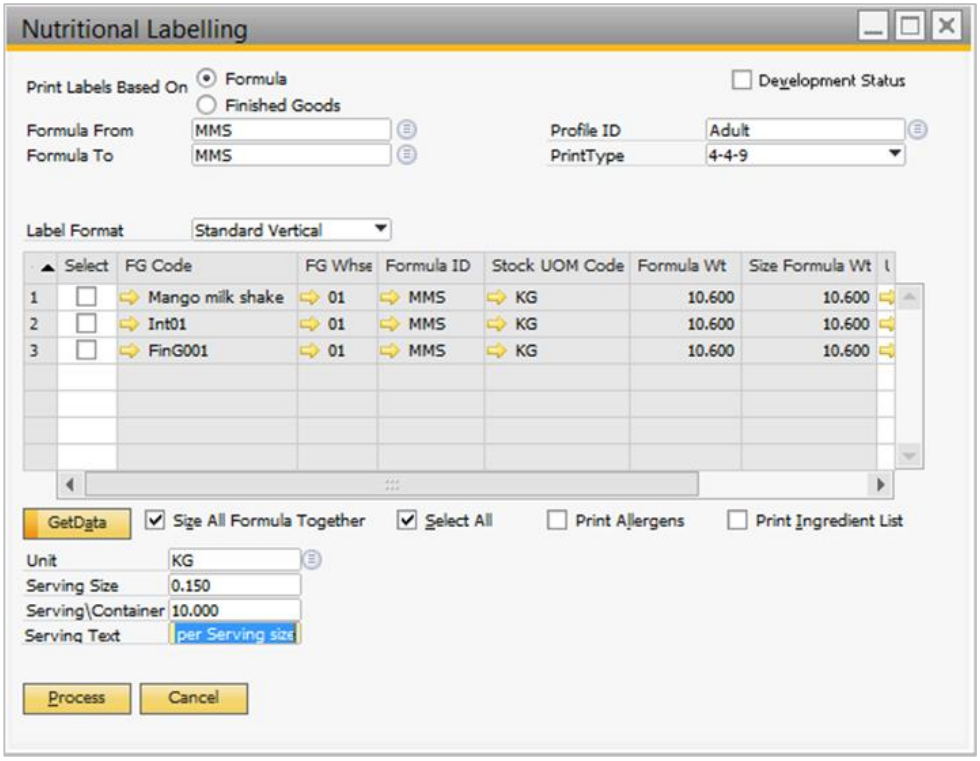
Thus Total Calories = Calories of item Mango pulp + Calories of item Milk + Calories of item Sugar + Calories of item Water

= 195.28 + 84.79 + 7.08 + 0

= 287.15 =290 (Value is rounded off)

6.2.1 Printing Nutrition Labeling Report

1. Establish the range of Finished Goods/Formula using the respective lookups next to the fields.



2. Select the *Profile ID* for which the report needs to be printed.
3. Select the format of the Label using the *Label Format* dropdown.
4. Choose the required Print Type as one of Atwater or 4-4-9.
5. Click the *Get Data* Button. All those Finished Goods that lie in the specified range are displayed in the grid.
6. Select the lines for which labels are to be printed. Click the *Select All* checkbox to select all lines.
7. Select the *Size All Formulas Together* checkbox to size the formulas.
8. Establish a unit in the *Unit* field.
9. Enter Serving Size, Serving Per Container, and Serv. Size Text in their respective fields.

10. Click the *Process Report* button to print labels.

Before generating the report, it is mandatory to release the BOM created for the respective finished good(s) and also the item(s) should have been associated with the properties.

Nutrients Report:

The Nutrition Facts label/Nutrient Information panel is a standard label which is required on most packaged food, in many countries. The properties can be seen in the *Physical Property Analysis* screen. The Report can be run for those items for which a BOM has been released.

Reports are generated through the *Nutritional Labeling* screen. As per the selected BOM items, details are displayed in Formula Wt. The screen also lets you size the formula. The formula weight can be altered in any defined units. It is mandatory that the conversions should be properly defined in the system.

You need to associate the *Added Sugar* property with an item and use that particular item in a formula and release a BOM for that formula. Now, when you select that formula in the *Physical Property Analysis* screen, you can view the property and its value in the grid under the *Line Items* tab of the screen.

In the sugar derivatives, you need to manually enter the value of Added Sugar for the item.

The added sugar property will be printed in the report.

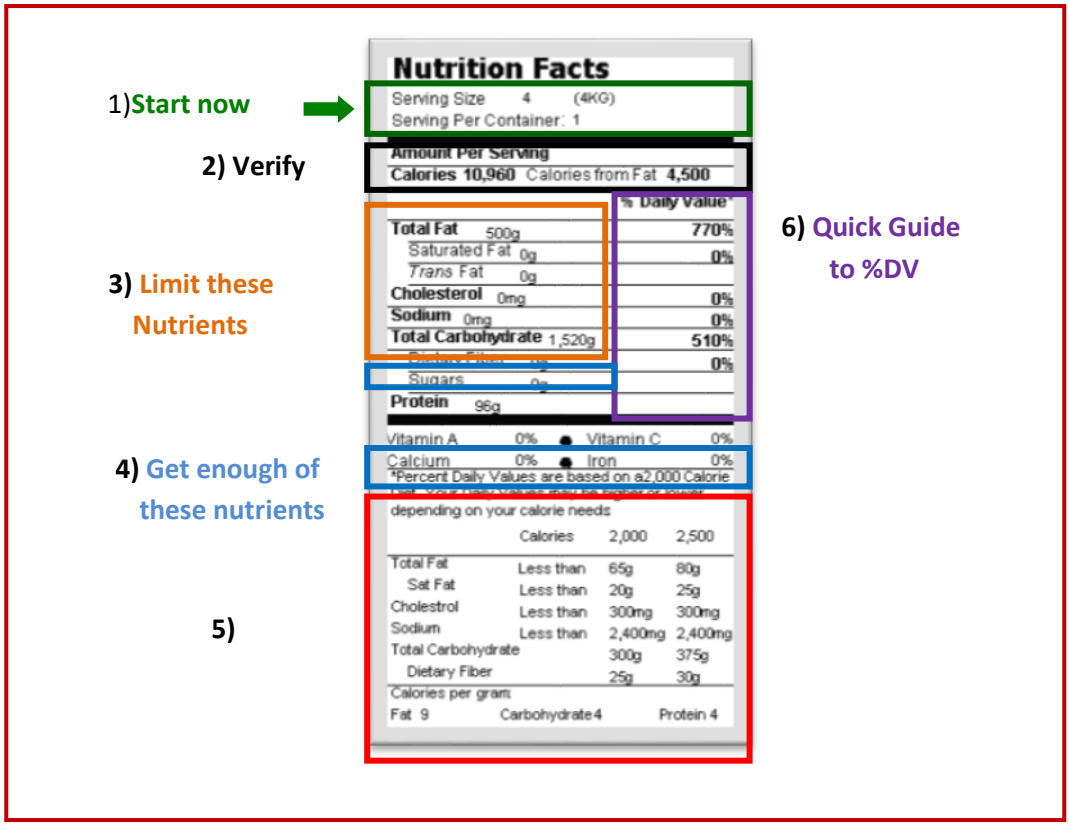
The utility generates 14 standard nutrient reports. For the Nutrient Report5 (Screen2), a set of 3 units is provided on screen as this report displays data for three different weights in a columnar format. If FDA Report 13 or 15 format is selected, the Report Criteria grid is expanded with options for Header1 and 2 to print the report in two different units. On all other screens, screen 1 is used.

The property values in the report can be checked and verified from the *Physical Property Analysis* screen under the *Laboratory* Module. Weight is altered by the *Serving Size* Field. Serving per container and Serving Size Text fields are used to display values on the report.

Following label formats are available to print the report.

1. Standard Vertical
2. Vertical Display with Micronutrients listed Side-by-Side
3. Vertical Display Including Some Voluntary Nutrients
4. Tabular Format
5. Aggregate Display
6. Dual Column Display, Per Serving and Per container
7. Simplified Display

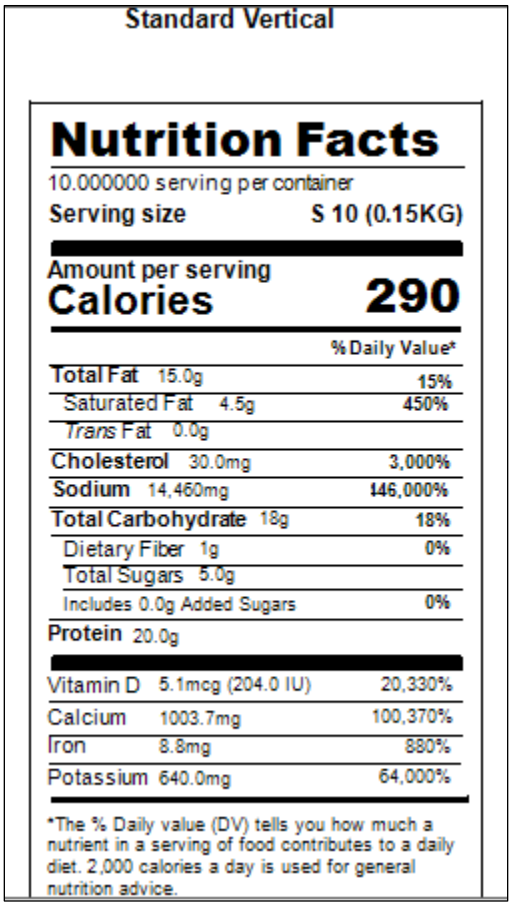
8. Infants through 12 months of Age
9. Children 1-3 years
10. Tabular Dual Column Display
11. Tabular Display for small or intermediate sized packages
12. Linear Display for small or intermediate sized packages
13. Dual columns, Two forms of the same food
14. Dual columns, per serving and per unit



Report Layouts are as below:

1.1.1.1 Nutrient FDA Report1 (Standard Format)

On selecting Nutrient FDA report 1 (Standard Format) in the *Select Nutrition report to print* field of Nutrition reports screen, the following report is generated.



Standard Vertical

Nutrition Facts

10.000000 serving per container

Serving size **S 10 (0.15KG)**

Amount per serving

Calories **290**

		% Daily Value*
Total Fat	15.0g	15%
Saturated Fat	4.5g	450%
Trans Fat	0.0g	
Cholesterol	30.0mg	3,000%
Sodium	14,460mg	146,000%
Total Carbohydrate	18g	18%
Dietary Fiber	1g	0%
Total Sugars	5.0g	
Includes 0.0g Added Sugars		0%
Protein	20.0g	
Vitamin D	5.1mcg (204.0 IU)	20,330%
Calcium	1003.7mg	100,370%
Iron	8.8mg	880%
Potassium	640.0mg	64,000%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Report Details:

Nutrition Facts: - This section of the report displays the following information:

Serving Size: This field displays the quantity of the finished good in one serving. This value is defaulted from the *Nutrition Reports* screen.

Serving Per Container: This field displays the number of Servings in a container. This value is defaulted from the *Nutrition Reports* screen.

Amount Per Serving: This section displays the quantity of nutrients contained in one serving.

Calories: The value displayed in this field is obtained from the *Physical Property Analysis* screen. This value is calculated on the basis of total formula weight.

The formula of calorie for 4-4-9 method is:

4 times Proteins + 4 times Carbohydrates + 9 times Fat

Example: - As shown in the above report.

Total Fat = 15 g

Total Carbohydrates = 18 g

& Total Proteins = 20 g

Therefore, Calories = 9*15+4*18+4*20 = 290

Total Fat: This field displays the total fat contained in one Serving. This value is the sum of saturated fat and Trans fat contained in the Serving.

Saturated Fat: This field displays the quantity of Saturated Fat present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Trans Fat: This field displays the quantity of Trans Fat present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Cholesterol: This field displays the quantity of Cholesterol present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Sodium: This field displays the quantity of Sodium present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Total Carbohydrate: This field displays the total quantity of Carbohydrate present in one Serving. This value is calculated on the basis of carbohydrate present in the ingredients of the formula as shown on the *Physical Property Analysis* screen.

Dietary Fiber: This field displays the quantity of Dietary Fiber present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Total Sugars: This field displays the quantity of sugar present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Protein: This field displays the quantity of Protein present in one Serving. This value is obtained from the *Physical Property Analysis* screen.

Vitamin A: This field displays the quantity of Vitamin A present in one Serving. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms.

Vitamin C: This field displays the quantity of Vitamin C present in one Serving. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms.

Calcium: This field displays the quantity of Calcium present in one Serving. The value in percentage is calculated on the basis of standard values of minerals as per FDA norms.

Iron: This field displays the quantity of Iron present in one Serving. This value is obtained from the *Physical Property Analysis* screen. The value in percentage is calculated on the basis of standard values of minerals as per FDA norms.

% Daily Value:

Percent ***Daily Value*** (DV) on the Nutrition Facts label is a guide to the nutrients in one serving of food. For example, if the label lists 15 percent for calcium, it means that one serving provides 15 percent of the calcium you need each day. DVs are based on a 2,000-calorie diet for healthy adults.

Dietary Values Percentage (%DV) is calculated by using following equation:

%DV = (Field Value / Standard Dietary Value)*100

For example let us consider the calculation for Carbohydrates:

Amount Per Serving value of Carbohydrates is 265 g

Carbohydrates based on 2000 calories is 300g (i.e. the daily reference value (DRV))

Daily value percent is calculated as follows:

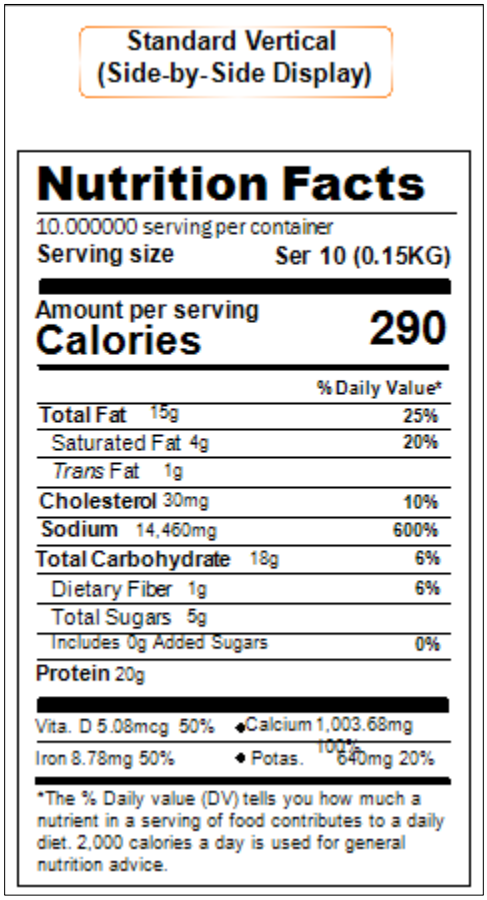
Amount of nutrition / standard daily value * 100

Therefore % Daily Value of Carbohydrates = ((265/ 300) * 100) = 88.33% = 90% approx.

Daily Value needs section value is hard coded as per US FDA Norms. This includes the following fields: Total Fat, Sat Fat, Cholesterol, Sodium, Total Carbohydrate, and Dietary Fiber. Note that for the total value %* Daily Value *for each is calculated in the same way as calculated above for carbohydrates.

1.1.1.2 Nutrient FDA Report2 (Standard Vertical (Side-by-Side Display))

On selecting *Nutrient FDA report 2 – Standard Vertical (Side-By-Side Display)* in the *Select Nutrition report to print* field of *Nutrition Reports* screen, the following report is generated. The layout used in this format is displayed side-by-side.



Standard Vertical
(Side-by-Side Display)

Nutrition Facts

10.000000 serving per container

Serving size **Ser 10 (0.15KG)**

Amount per serving

Calories **290**

	% Daily Value*
Total Fat 15g	25%
Saturated Fat 4g	20%
Trans Fat 1g	
Cholesterol 30mg	10%
Sodium 14,460mg	600%
Total Carbohydrate 18g	6%
Dietary Fiber 1g	6%
Total Sugars 5g	
Includes 0g Added Sugars	0%
Protein 20g	

Vita. D 5.08mcg 50% ◆Calcium 1,003.68mg 100%

Iron 8.78mg 50% ◆ Potas. 640mg 20%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

1.1.1.3 Nutrient FDAReport3 (Standard Vertical (w/Voluntary))

On selecting *Nutrient FDA report3 - Standard Vertical (w/Voluntary)* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report also displays data in a Vertical format. This format includes the voluntary reporting of other nutritional DVs such as Calcium, Vitamins, etc.

Standard Vertical
(w/ voluntary)

Nutrition Facts

10.000000 serving per container

Serving size **Ser 10 (0.15KG)**

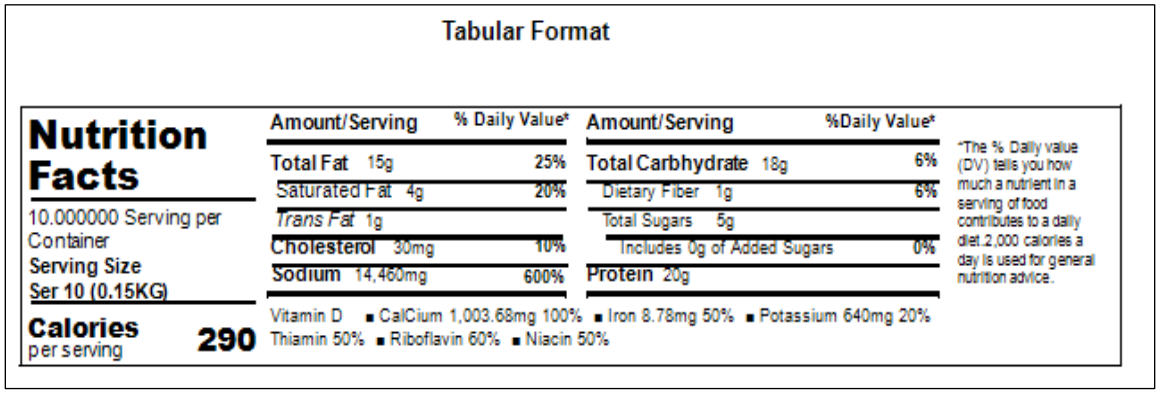
Amount per serving

Calories **290**

	% Daily Value*
Total Fat 15g	25%
Saturated Fat 4g	20%
Trans Fat 1g	
Polyunsaturated Fat 1g	
Monounsaturated Fat 8g	
Cholesterol 30mg	10%
Sodium 14,460mg	600%
Total Carbohydrate 18g	6%
Dietary Fiber 1g	6%
Soluble Fiber 0g	
Insoluble Fiber 0g	
Total Sugars 5g	
Includes 0g Added Sugars	0%
Protein 20g	40%
Vitamin D 5.08mcg (203.28IU)	50%
Calcium 1,003.68mg	100%
Iron 8.78mg	50%

1.1.1.4 Nutrient FDA report4 (Tabular Format)

On selecting *Nutrient FDA Report4 - Tabular Format* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This displays data in horizontal and tabular format but the only difference which exists is that this format displays information related to Thiamin, Riboflavin, and Niacin.



1.1.1.5 Nutrient FDA report5 (Aggregate Display) - Under Development

Report Criteria Grid:

For Nutrient Report5 a set of 3 units is provided on screen as this report displays data for three different weights in column format. The report criteria can be applied with three options. The report criteria for this report are as follows.

Unit: This is the unit in which the finished good is served. The Serving Size, Serving Per Container is defined in this unit.

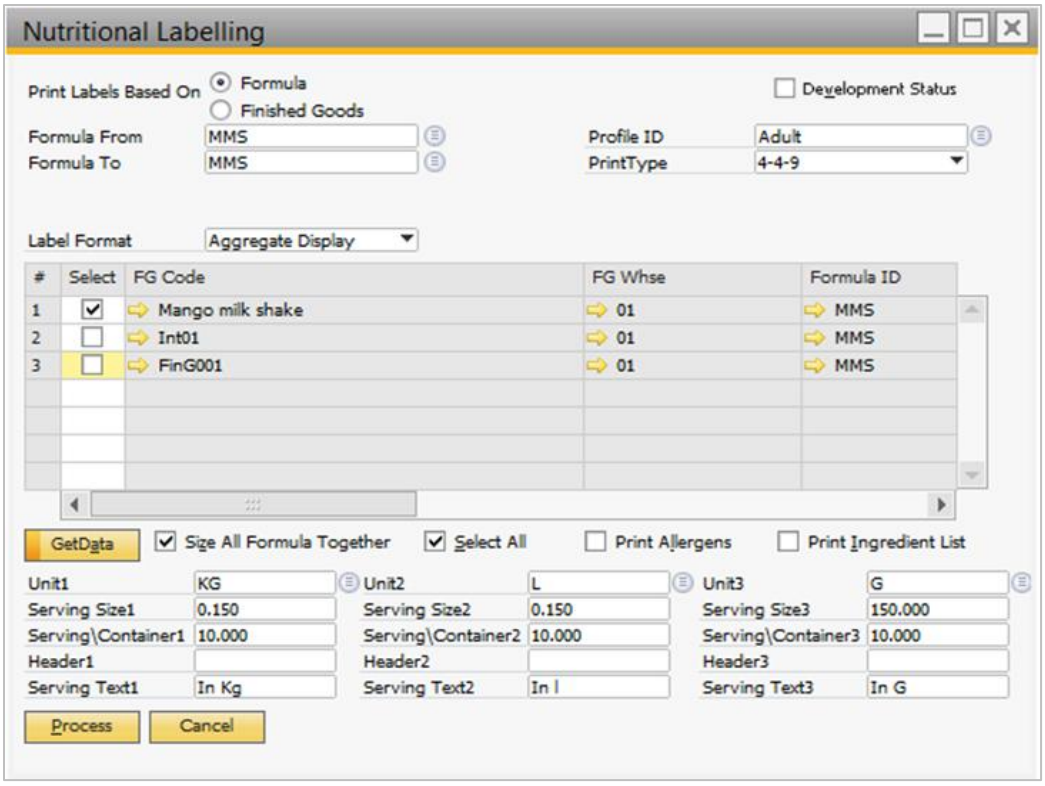
Serving Size: The value entered in this field determines the quantity being served.

Servings Per Container: This field determines the number of servings in the product container.

Serv. Size Text: This field is used to specify the description for serving size, for example suppose we are serving 1 spoon then 1 will be serving size and 1 spoon will be the Serving size text i.e. the whole description of the serving size.

Header: This field can be used to specify the Header text of different criteria options for the report.

On selecting *Nutrient FDA report 5* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated.



Report Details

This report displays the data for three different servings in column format. This report also displays the *Percent Daily Values* section. This is the most detailed format. This report also displays information about Thiamin, Riboflavin, Niacin and Vitamin B6 present in the finished good.

Nutrition Facts: - This section of the report displays the following information:

Serving Size: This field displays the quantity of the finished good in one serving. This value is defaulted from the *Nutrition Reports* screen.

Serving Per Container: This field displays the number of servings in the finished good container. This value is defaulted from the *Nutrition Reports* screen. This field simultaneously displays the Serving Per Container values for Serving1, Serving2 and Serving3.

Amount Per Serving: This section displays the quantity of all reportable items contained in the Total weight of the formula, calculated as the Amount Per Serving values for Serving1, Serving2 and Serving3.

Calories: The value displayed in this field is obtained from *Physical Property Analysis* screen. This value is calculated on the basis of total formula weight. This field simultaneously displays the Calories value for Serving1, Serving2 and Serving3.

Calories from Fat: The value displayed in this field is calculated on the basis of total fat contained in the formula. This field simultaneously displays the Calories from Fat values for Serving1, Serving2 and Serving 3.

Total Fat: This value is the sum of saturated fat and Trans fat contained in the formula, calculated as the Amount Per Serving Total Fat values for Serving1, Serving2 and Serving 3.

Saturated Fat: This field displays the quantity of Saturated Fat present in the finished good, calculated as the Amount Per Serving Saturated Fat values for Serving1, Serving2 and Serving 3. This value is obtained from the *Physical Property Analysis* screen.

Trans Fat: This field displays the quantity of Trans Fat present in the finished good, calculated as the Amount Per Serving Trans Fat values for Serving1, Serving2 and Serving 3. This value is obtained from the *Physical Property Analysis* screen.

Cholesterol: This field displays the quantity of Cholesterol present in the finished good, calculated as the Amount Per Serving Cholesterol values for Serving1, Serving2 and Serving 3. This value is obtained from the *Physical Property Analysis* screen.

Sodium: This field displays the quantity of Sodium present in the finished good, calculated as the Amount Per Serving Sodium values for Serving1, Serving2 and Serving3. This value is obtained from the *Physical Property Analysis* screen.

Total Carbohydrate: This field displays the total quantity of Carbohydrate present in the finished good. This value is calculated on the basis of carbohydrate present in the ingredients of the formula as shown on the *Physical Property Analysis* screen. This field simultaneously displays the Total Carbohydrates value for Serving1, Serving2 and Serving3.

Dietary Fiber: This field displays the quantity of Dietary Fiber present in the finished good, calculated as the Amount Per Serving Dietary Fiber values for Serving1, Serving2 and Serving3. This value is obtained from the *Physical Property Analysis* screen.

Total Sugars: This field displays the quantity of sugar present in the finished good, calculated as the Amount Per Serving Sugar value for Serving1, Serving2 and Serving3. This value is obtained from the *Physical Property Analysis* screen.

Protein: This field displays the quantity of Protein present in the finished good, calculated as the Amount Per Serving Protein value for Serving1, Serving2 and Serving3. This value is obtained from the *Physical Property Analysis* screen.

Vitamin A: This field displays the quantity of Vitamin A present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Vitamin A value for Serving1, Serving2 and Serving3.

Vitamin C: This field displays the quantity of Vitamin C present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Vitamin C value for Serving1, Serving2 and Serving3.

Calcium: This field displays the quantity of Calcium present in the finished good. The value in percentage is calculated on the basis of standard values of minerals as per FDA norms. This field simultaneously displays the Calcium values for Serving1, Serving2 and Serving3.

Iron: This field displays the quantity of Iron present in the finished good. The value in percentage is calculated on the basis of standard values of minerals as per FDA norms. This field simultaneously displays the Iron values for Serving1, Serving2 and Serving3.

Potassium: This field displays the quantity of potassium present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Vitamin C value for Serving1, Serving2, and Serving 3.

Thiamin: This field displays the quantity of Thiamin present in the finished good. The value in percentage is calculated on the basis of standard values of minerals as per FDA norms. This field simultaneously displays the Thiamin values for Serving1, Serving2 and Serving3.

Riboflavin: This field displays the quantity of Riboflavin present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Riboflavin values for Serving1, Serving2 and Serving3.

Niacin: This field displays the quantity of Niacin present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Niacin values for Serving1, Serving2 and Serving 3.

Vitamin B6: This field displays the quantity of Vitamin B6 present in the finished good. The value in percentage is calculated on the basis of standard values of vitamins as per FDA norms. This field simultaneously displays the Vitamin B6 values for Serving1, Serving2 and Serving3.

% Daily Value:

Percent ***Daily Value*** (DV) on the Nutrition Facts label is a guide to the nutrients in one serving of food. For example, if the label lists 15 percent for calcium, it means that one serving provides 15 percent of the calcium you need each day. DVs are based on a 2,000-calorie diet for healthy adults.

Daily Value needs section value are hard coded as per US FDA Norms. This includes following fields Total Fat, Sat Fat, Cholesterol, Sodium, Total Carbohydrate, and Dietary Fiber

Aggregate Dispaly

Nutrition Facts

3 Servings Per Container
Serving Size In Kg

Amount Per Serving

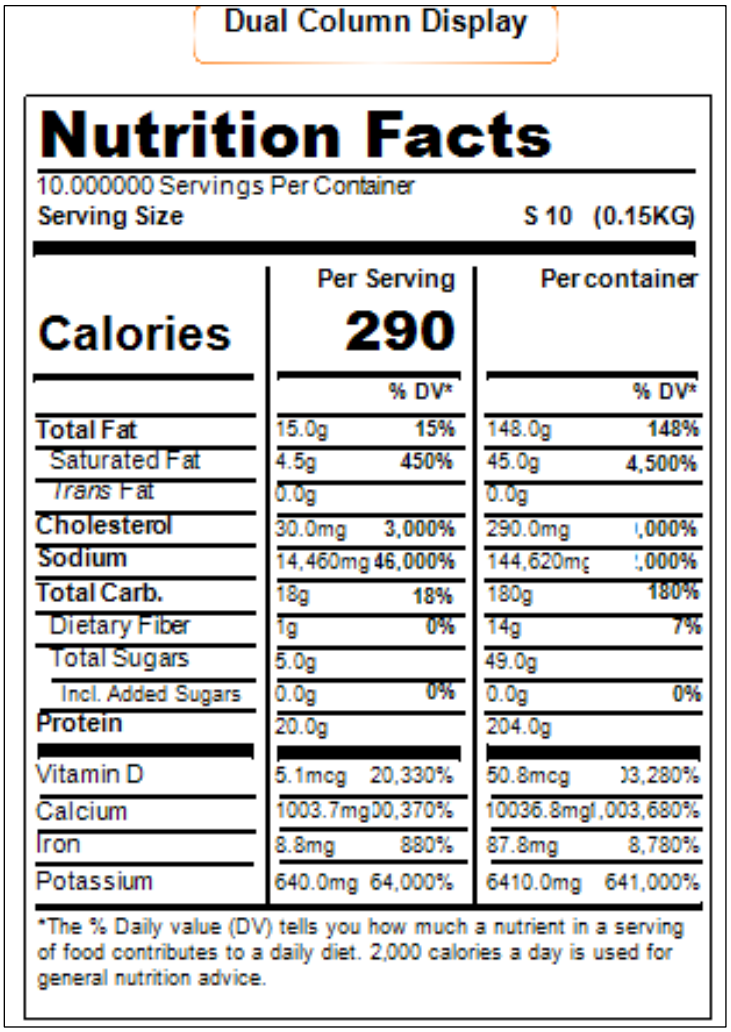
Calories

	Wheat Squares Sweetened (0.15KG)		Corn Flakes Not Sweetened (0.15L)		Mixed Grain Flakes Sweetened (150G)	
	20,290		0		20,290	
		% Daily Value*		% Daily Value*		% Daily Value*
Total Fat	1,048g	1,610%	0g	0%	1,048g	1,610%
Saturated Fat	317g	1,590%	0		317g	1,590%
Trans Fat	1g		0		0g	
Cholesterol	2,060mg	690%	0		2,060mg	690%
Sodium	1,032,840	43,040%	0		1,032,840	3,040%
Total Carbohydrate	1,270g	420%	0		1,270g	420%
Dietary Fiber	100g	400%	0		100g	400%
Total Sugars	347g		0		347g	
Includes Added Sugars	0g	0%	0		0g	0%
Protein	1,444g		0		1,444g	
Vitamin D	358.00mcg	3,580%	0		358.00mcg	3,580%
Calcium	70,834.00mg	7,060%			70,834.00mg	7,060%
Iron	618.58mg	3,440%			618.58mg	3,440%
Potassium	45,210mg	1,290%	0		45,210mg	1,290%
Vitamin A		3,770%				3,770%
Vitamin C		3,500%				3,500%
Thiamin		3,380%				3,380%
Riboflavin		3,910%				
Niacin		3,530%				3,530%
Vitamin B6		3,540%				

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

1.1.1.6 Nutrition FDA Report 6 (Dual Column Display)

On selecting *Nutrient FDA Report6 - Dual Column Display* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in vertical format and in two columns.



Dual Column Display

Nutrition Facts

10.000000 Servings Per Container

Serving Size S 10 (0.15KG)

	Per Serving		Per container	
Calories	**290**			
		% DV*		% DV*
Total Fat	15.0g	15%	148.0g	148%
Saturated Fat	4.5g	450%	45.0g	4,500%
Trans Fat	0.0g		0.0g	
Cholesterol	30.0mg	3,000%	290.0mg	,000%
Sodium	14,460mg	46,000%	144,620mg	,000%
Total Carb.	18g	18%	180g	180%
Dietary Fiber	1g	0%	14g	7%
Total Sugars	5.0g		49.0g	
Incl. Added Sugars	0.0g	0%	0.0g	0%
Protein	20.0g		204.0g	
Vitamin D	5.1mcg	20,330%	50.8mcg	03,280%
Calcium	1003.7mg	00,370%	10036.8mg	,003,680%
Iron	8.8mg	880%	87.8mg	8,780%
Potassium	640.0mg	64,000%	6410.0mg	641,000%

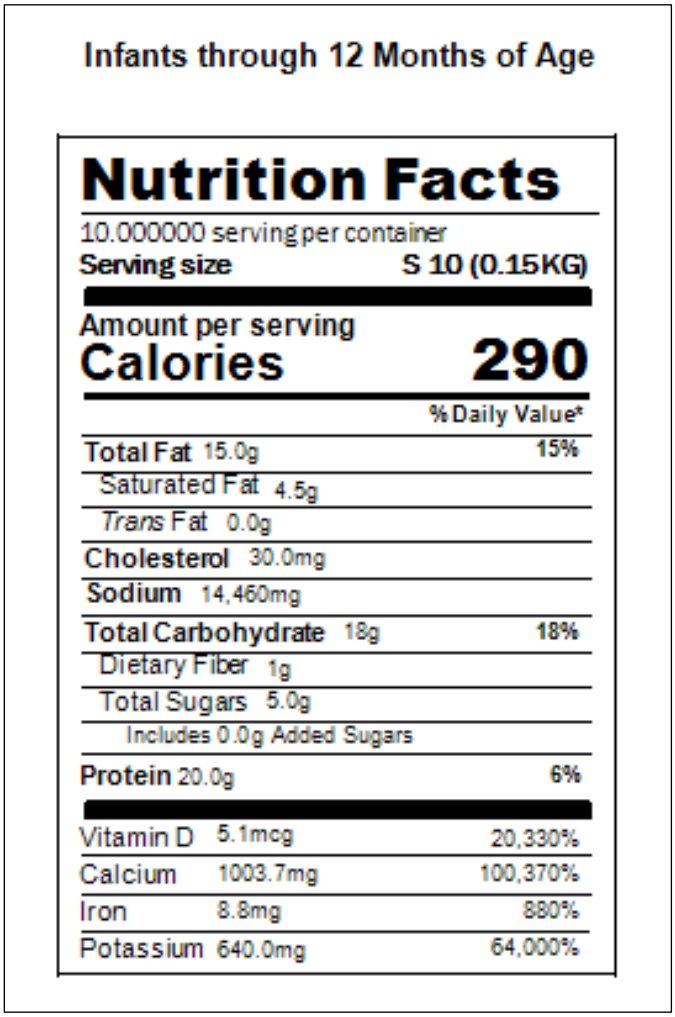
*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

1.1.1.7 Nutrition FDA Report 7 (Simplified Display)

On selecting *Nutrition FDA Report7 - Simplified Display* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a vertical format and in an even more simplified way:

1.1.1.8 Nutrition FDA Report 8 (Infants through 12 Months of Age)

On selecting *Nutrition FDA Report8 - Infants through 12 Months of Age* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a vertical format and shows the values as per the recommended consumption for the age group of infants up to 12 months:



Infants through 12 Months of Age

Nutrition Facts

10.000000 serving per container

Serving size **S 10 (0.15KG)**

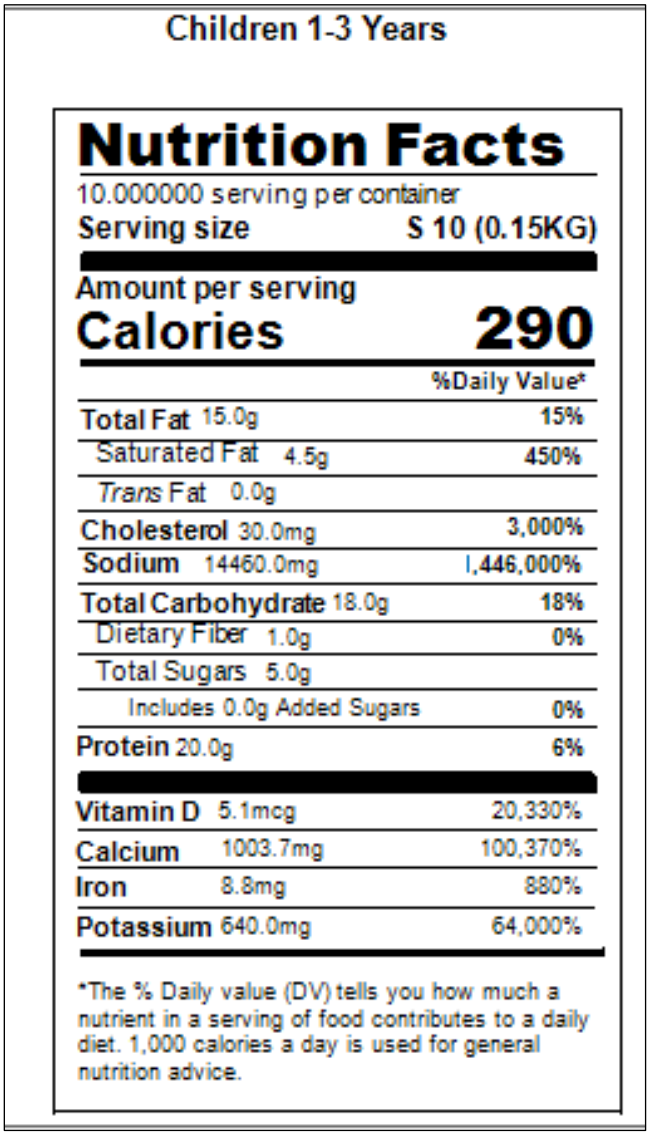
Amount per serving

Calories **290**

		% Daily Value*
Total Fat	15.0g	**15%**
Saturated Fat	4.5g	
Trans Fat	0.0g	
Cholesterol	30.0mg	
Sodium	14,460mg	
Total Carbohydrate	18g	**18%**
Dietary Fiber	1g	
Total Sugars	5.0g	
Includes 0.0g Added Sugars		
Protein	20.0g	**6%**
Vitamin D	5.1mcg	20,330%
Calcium	1003.7mg	100,370%
Iron	8.8mg	880%
Potassium	640.0mg	64,000%

1.1.1.9 Nutrition FDA Report 9 (Children 1-3 Years)

On selecting *Nutrition FDA Report9 - Children 1-3 Years* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a vertical format and shows the values as per the recommended consumption for the age group of children between 1 and 3 years of age:



Children 1-3 Years

Nutrition Facts

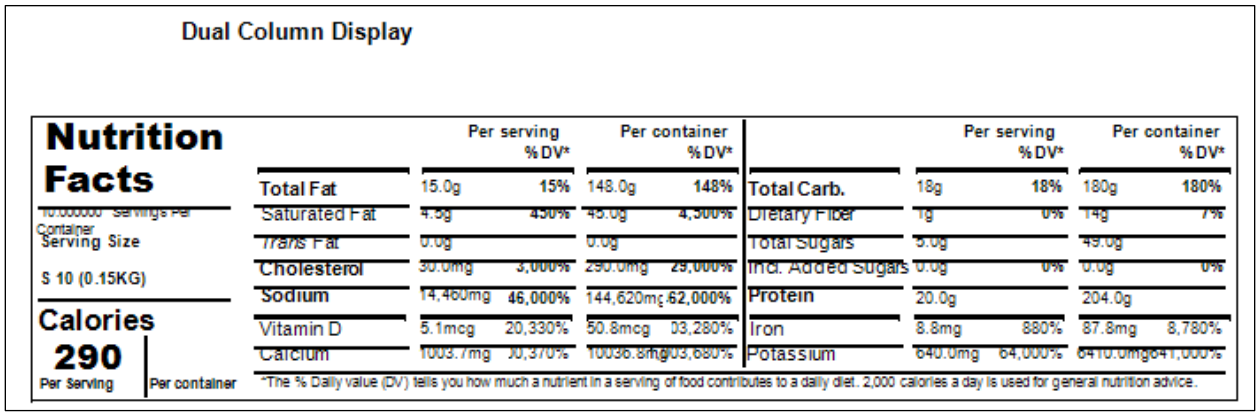
10.000000 serving per container

Serving size	**S 10 (0.15KG)**
Amount per serving	
Calories	**290**
	%Daily Value*
Total Fat 15.0g	**15%**
Saturated Fat 4.5g	**450%**
Trans Fat 0.0g	
Cholesterol 30.0mg	**3,000%**
Sodium 14460.0mg	**1,446,000%**
Total Carbohydrate 18.0g	**18%**
Dietary Fiber 1.0g	**0%**
Total Sugars 5.0g	
Includes 0.0g Added Sugars	**0%**
Protein 20.0g	**6%**
Vitamin D 5.1mcg	20,330%
Calcium 1003.7mg	100,370%
Iron 8.8mg	880%
Potassium 640.0mg	64,000%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 1,000 calories a day is used for general nutrition advice.

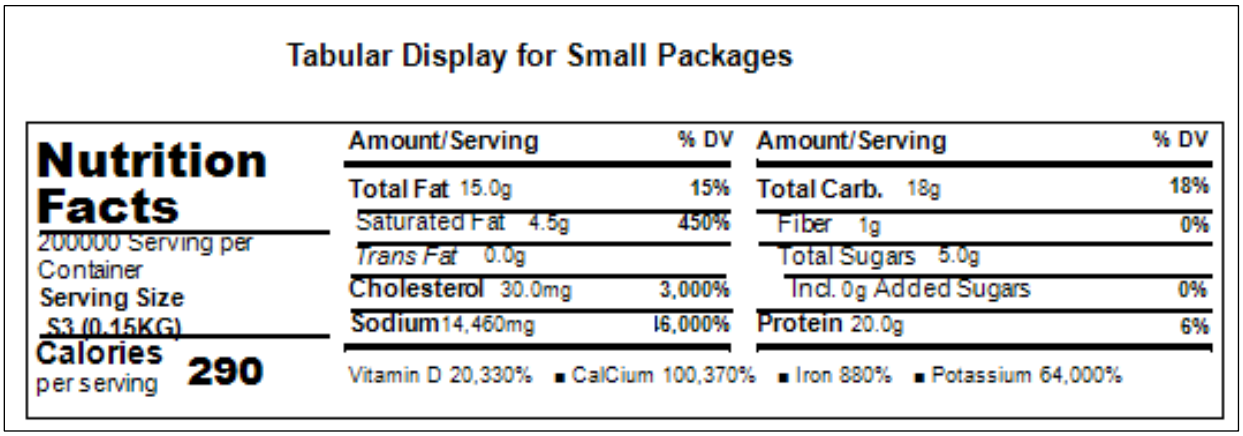
1.1.1.10 Nutrition FDA Report 10 (Tabular Dual Column Display)

On selecting *Nutrition FDA Report10 - Tabular Dual Column Display* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a horizontal format and the layout is divided into two columns:



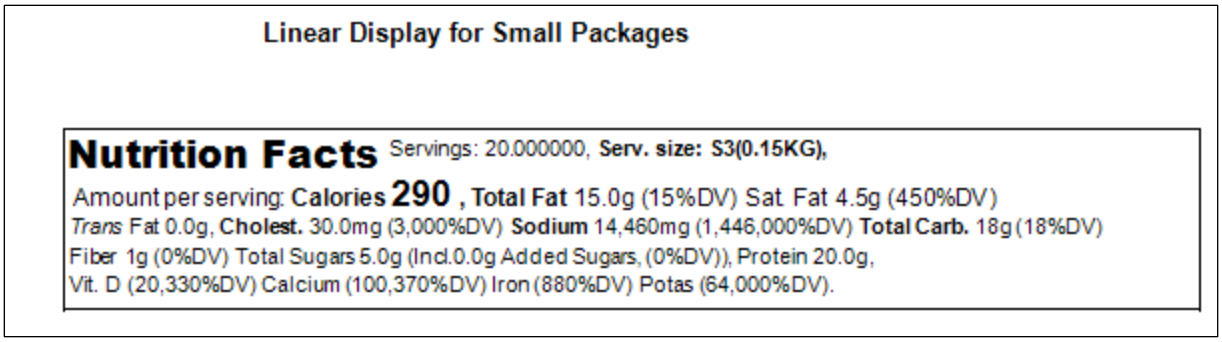
1.1.1.11 Nutrition FDA Report 11 (Tabular Display for Small Packages)

On selecting *Nutrition FDA Report11 - Tabular Display for Small Packages* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a horizontally tabular format and the size of the label is designed for small packages:



1.1.1.12 Nutrition FDA Report 12 (Linear Display for Small Packages)

On selecting *Nutrition FDA Report12 - Linear Display for Small Packages* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in a single line one after the other and the size of the label is designed for small packages:



1.1.1.13 Nutrition FDA Report 13 (Dual Columns, Two Forms of the Same Food)

On selecting *Nutrition FDA Report13 - Dual Columns, Two Forms of the Same Food* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in two columns and shows the %Daily Values for two different servings:

Dual Column Display

Nutrition Facts

10.000000 Servings Per Container

Serving Size **S10 (0.145KG)**

Calories	**290**		**2920**	
		% DV*		**% DV***
Total Fat	16.0g	**16%**	157.0g	**157%**
Saturated Fat	0.5g	**50%**	7.0g	**700%**
Trans Fat	0.0g		0.0g	
Cholesterol	5.0mg	**500%**	70.0mg	**',000%**
Sodium	13,770mg	**77,000%**	137,740mg	**.,000%**
Total Carb.	18g	**18%**	185g	**185%**
Dietary Fiber	1g	**0%**	14g	**7%**
Total Sugars	3.0g		27.0g	
Incl. Added Sugars	0.0g	**0%**	0.0g	**0%**
Protein	20.0g		196.0g	
Vitamin D	4.8mcg	19,040%	47.6mcg	30,400%
Calcium	824.4mg	82,440%	8244.2mg	824,420%
Iron	8.3mg	830%	82.8mg	8,280%
Potassium	570.0mg	57,000%	5740.0mg	574,000%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

1.1.1.14 Nutrition FDA Report 14 (Dual Columns, Per Serving and Per Unit)

On selecting *Nutrition FDA Report14 - Dual Columns, Two Forms of the Same Food* in the *Select Nutrition report to print* field of the *Nutrition Reports* screen, the following report is generated. This report displays data in two columns and shows the %Daily Values for two different servings and units:

Dual Column Display

Nutrition Facts

5.000000 Servings Per Container

Serving Size **S10 (0.15KG)**

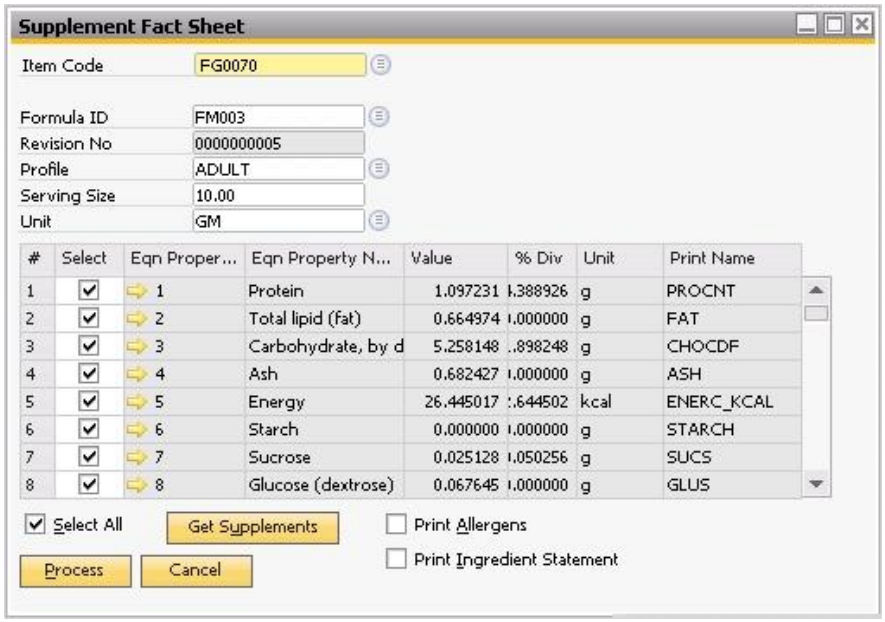
Calories	**290**		**290**	
		% DV*		% DV*
Total Fat	15.0g	15%	74.0g	74%
Saturated Fat	4.5g	450%	22.0g	2,200%
Trans Fat	0.0g		0.0g	
Cholesterol	30.0mg	3,000%	145.0mg	,500%
Sodium	14,460mg	46,000%	72,310mg	,000%
Total Carb.	18g	18%	90g	90%
Dietary Fiber	1g	0%	7g	4%
Total Sugars	5.0g		24.0g	
Incl. Added Sugars	0.0g	0%	0.0g	0%
Protein	20.0g		102.0g	
Vitamin D	5.1mcg	20,330%	25.4mcg	01,640%
Calcium	1003.7mg	00,370%	5018.4mg	501,840%
Iron	8.8mg	880%	43.9mg	4,390%
Potassium	640.0mg	64,000%	3210.0mg	321,000%

*The % Daily value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

6.3 Supplement Fact Sheet

You now know how to generate nutritional labels for a product. You may also want to generate a sheet or label that lists the supplements contained in a product, along with their values.

Go To: Laboratory → Nutritional Labeling → Supplement Fact Sheet.



Using the *Supplement Fact Sheet* screen, you can generate a supplementary fact sheet for a finished good and optionally make it specific to a profile (e.g., adults or children). You can also choose the supplements that you want to print in the sheet.

Item Code: Enter the item code of the finished good for which you want to print a fact sheet.

Formula ID: Defaults in from the database. Can be overridden, if necessary.

Profile (optional)**:** Enter the profile for which you want to print the fact sheet.

Serving Size, Unit of Measure: Enter the serving size and unit of measure.

Select All (default)**:** Click to select/deselect records in the grid.

Print Allergens: Click to have allergens print on the labels.

Print Ingredient Statement: Click to print ingredients on the labels.

Process: Click the *Process* button to print labels.

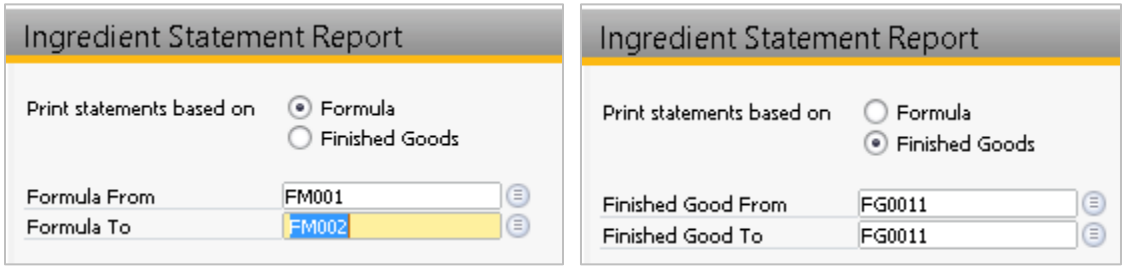
Cancel: Click *Cancel* to exit the utility.

7 INGREDIENT STATEMENT

The ingredient statement contains important information regarding all formulas or recipes produced in a company. Every manufacturer should provide this statement, as per FDA requirements. The printed statement is a raw print of all the ingredients that are used within the formula or the recipe by weight. Ingredients are listed by their common names along with the descriptions maintained within the database. The specified ingredients are listed in descending order of predominance by weight.

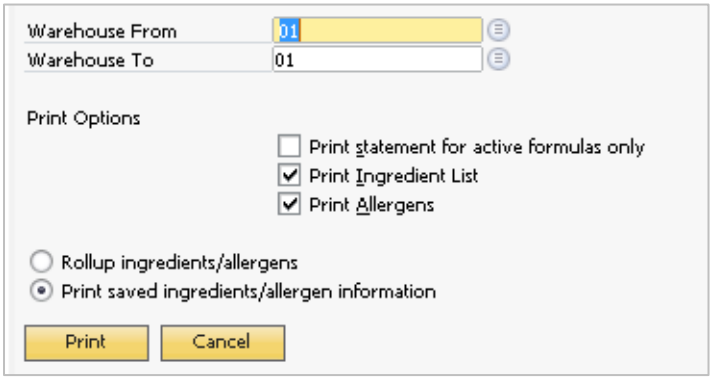
7.1 Ingredient Statement Report

The *Ingredient Statement Report* screen lets you generate a statement of all the raw materials and intermediates used in one or more formulas or finished goods. Along with the ingredients, the report also lists the allergens. As the formula is composed of raw materials and intermediates (goods used to produce other goods), the report additionally provides the option to expand the intermediates used in formulas or finished goods.



Print statements based on: Select either the *Formula* or *Finished Goods* option.

From/To: Enter the appropriate filtering information.



Warehouse From: Specify the lower limit of the range of warehouses whose finished goods should be considered for printing ingredient statements. Leaving this field blank has the same effect as entering the first available warehouse using the lookup.

Warehouse To: Specify the upper limit of the range of warehouses whose finished goods should be considered for printing ingredient statements. Leaving this field has the same effect as entering the last available warehouse using the lookup.

Print Options

Print statement for active formulas only: Select this option to print ingredient statements for formulas with *Active* status.

Print Ingredient List: Select this option to print the list of ingredients of the formulas or finished goods in the statement.

Print Allergens: Select this option to print allergens in a given range of formulas or finished goods.

Rollup ingredients/allergens: Select this option to roll up the ingredients and allergens of the raw materials up to the finished goods. The rolled up ingredients and allergen information are updated on the *Item Master Details* screen of the finished good. Consider orange juice, which consumes the raw material "Orange" which in turn has "Vitamin C" as an ingredient. If you select the *Rollup ingredients/allergens* option, then Vitamin C will be saved as an ingredient for "Orange juice" as well in the *Item Master Details* screen, and it will be printed on the *Ingredient Statement Report*.

Print saved ingredients/allergen information: Select this option to print the allergen and ingredient information saved for the raw materials on the statement. In this case, the allergen and ingredient information of the raw materials are not updated for the finished good.

Consider the same example, "Orange Juice". If you select the *Print saved ingredients/allergen information* option, then Vitamin C will be printed as the ingredient of orange and not as that of orange juice. However, if the allergen and ingredient information has already been rolled up, then the information so saved in the *Item Master Details* screen of Orange Juice will be printed on the *Ingredient Statement Report*.

Print: Click the *Print* button to generate the report.

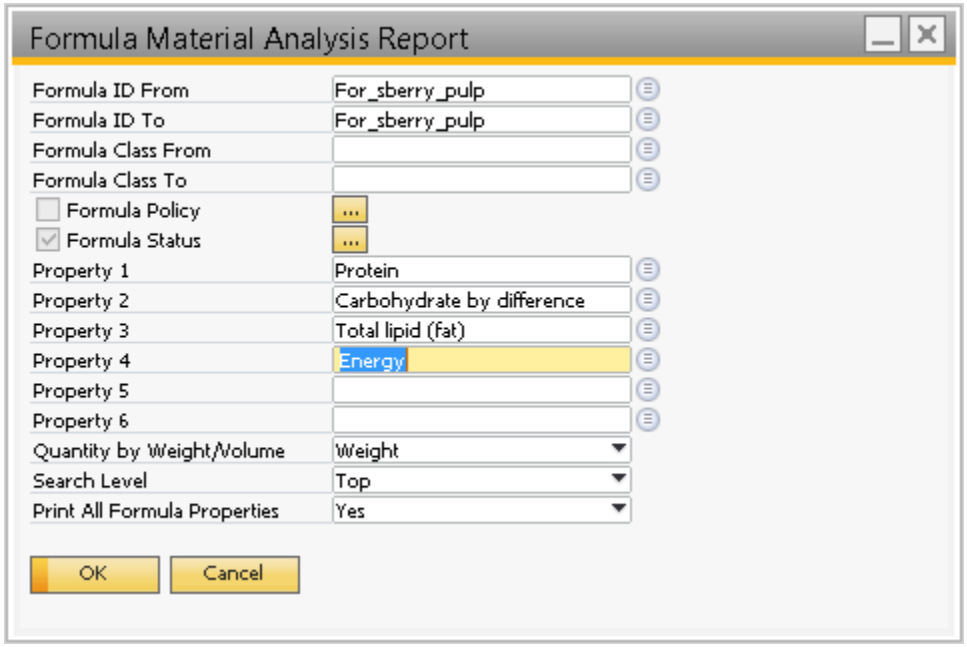
Cancel: Click the *Cancel* button to close the screen without generating the report.

8 LABORATORY REPORTS

Go To: Laboratory → Laboratory Reports.

8.1 Formula Material Analysis Report

The *Formula Material Analysis Report* lets you analyze up to six physical properties of the raw materials (ingredients) included in a formula. For the formula(s) selected, it displays the quantity of the ingredients used and the values of specified physical properties of each ingredient.

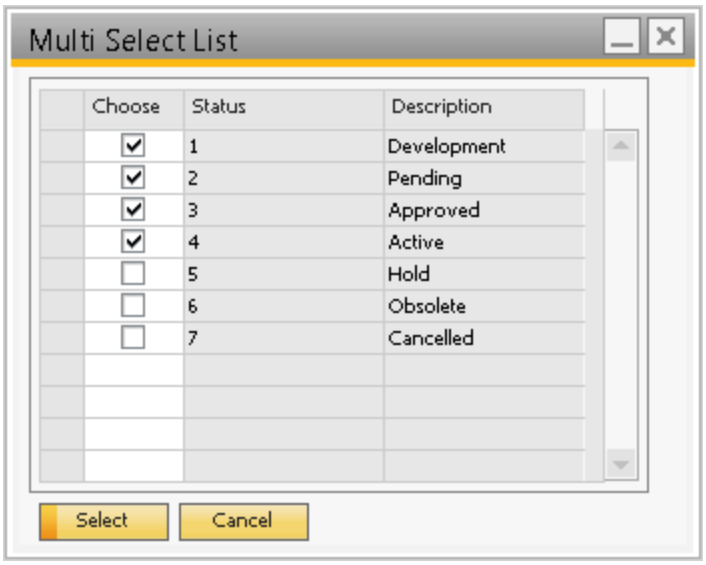


Formula ID From/To: The range of formulas to report on. These fields are mandatory unless you filter by formula class or policy.

Formula Class From/To (optional)**:** The range of formula classes to report on.

Formula Policy (optional)**:** Limit the report to formulas that have specific policies (e.g., 'Active').

Formula Status (optional)**:** Use this option to filter the formulas of specific status. Click on the *Browse* button and choose the statuses need to be included. You are required to select atleast one status to generate the report.



Property (1 – 6): Material properties to be analyzed (minimum of one, up to a maximum of six).

Quantity by Weight/Volume: Specify whether to display quantities in weight or volume units.

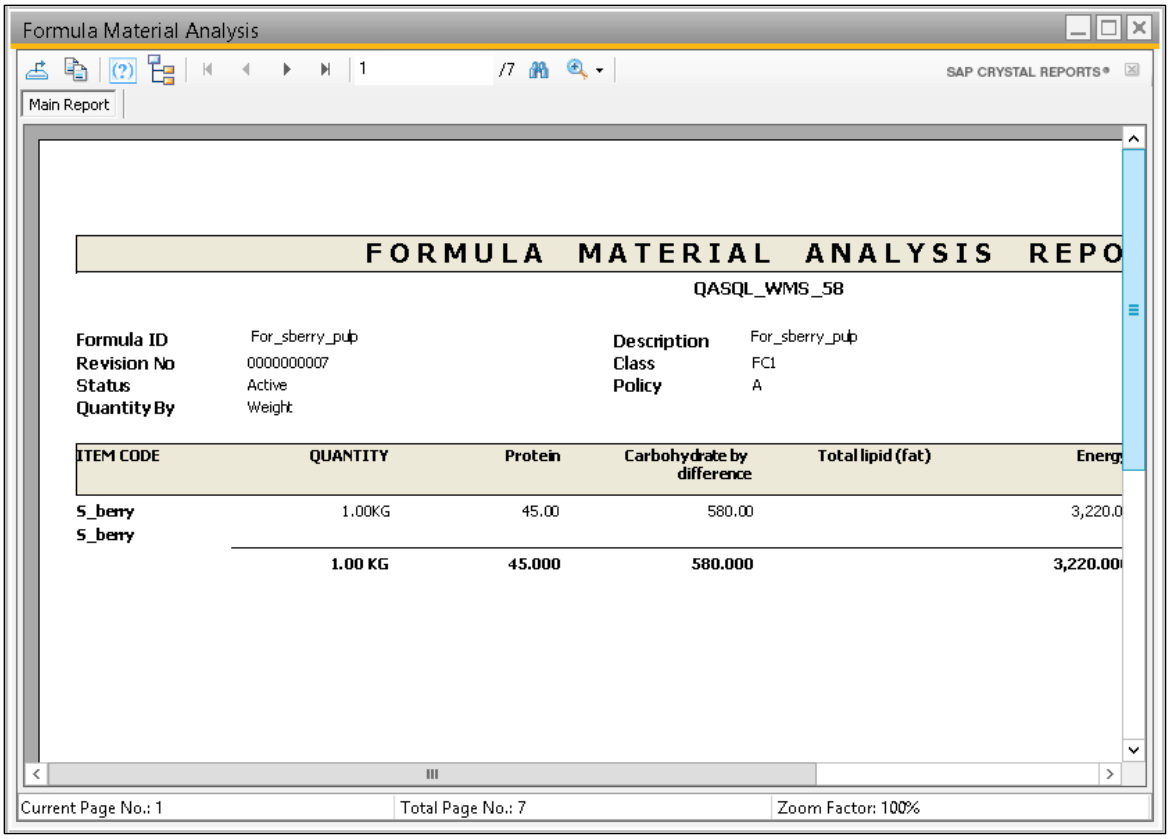
Search Level: The level of information to be displayed on the report. Select *Top* to display only the first level of ingredients in the formula. Select *Bottom* to display ingredients in all levels of the formula.

Print All Properties: Select *No* to print only the properties (1 through 6) you entered, or *Yes* to print all the material properties of the formula on a separate page.

Print: Click the *Print* button to generate the report.

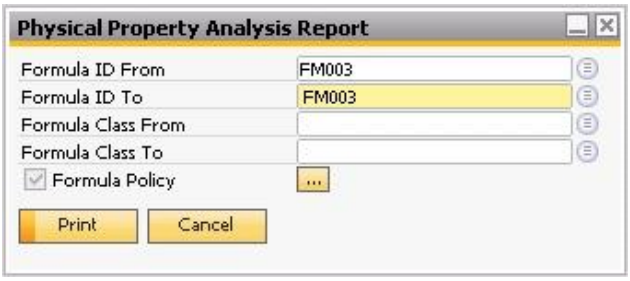
Cancel: Click the *Cancel* button to close the screen without generating the report.

An example of the generated report is shown below:


Formula Material Analysis
SAP CRYSTAL REPORTS®
Main Report
FORMULA MATERIAL ANALYSIS REPO
QASQL_WMS_58
Formula ID For_sberry_pulp
Revision No 0000000007
Status Active
Quantity By Weight
Description For_sberry_pulp
Class FC1
Policy A
ITEM CODE
QUANTITY
Protein
Carbohydrate by difference
Total lipid (fat)
Energ
S_berry 1.00KG 45.00 580.00 3,220.0
S_berry
1.00 KG 45.000 580.000 3,220.00
Current Page No.: 1
Total Page No.: 7
Zoom Factor: 100%

8.2 Physical Property Analysis Report

This report lists all ingredients by Weight, followed by the value of all physical properties (see nextpage). For the selected formula you can directly print this report using the context menu available on the *Physical Property Analysis* screen.



Formula ID From/To: The range of formulas to report on. These fields are mandatory unless you filter by formula class or policy.

Formula Class From/To (optional)**:** The range of formula classes to report on.

Formula Policy (optional)**:** Limit the report to formulas that have one or more policies.

Print: Click the *Print* button to generate the report.

An example of a generated *Physical Property Analysis Report* is provided below.

PHYSICAL PROPERTY ANALYSIS REPORT

David's Process Inc.

Formula : FM003
Revision No : 0000000005

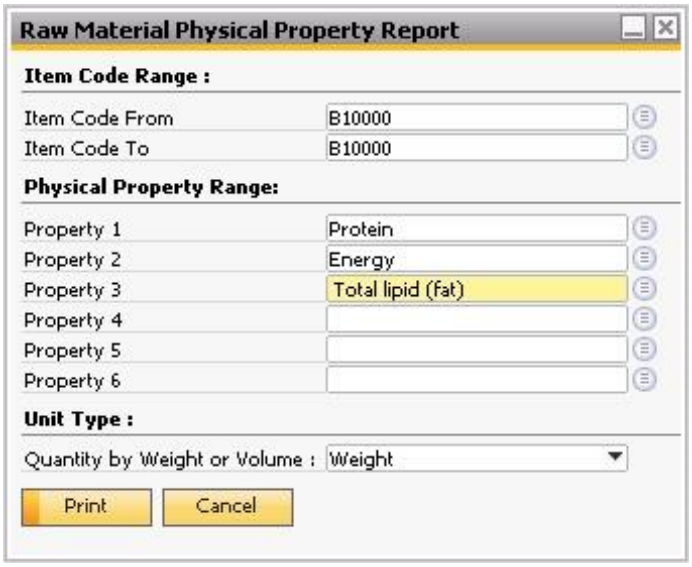
Description : Formula for Seasonig Base **Formula Status:** Active

Line	Item Key	Whs Code	Description	Weight	Qty in Disp UOM	UOM
1	RM0034		Minced Onion	1.986898	1.986898	LB
2	RM0031		Black Pepper 28 Mesh	0.993449	0.993449	LB
3	RM0032		Chili Powder	1.058957	480.332686	GM
4	RM0035		Roasted Garlic Powder	1.986898	1.986898	LB
5	RM0033		Paprika	0.993449	0.993449	LB
6	RM0012		Salt	0.248362	112.654655	GM
7	RM0038		Tricalcium Phosphate	0.745087	0.745087	LB
11	RM0039		Ground Cumin Powder	0.993449	0.993449	LB
12	RM0040		Oregano	0.993449	0.993449	LB

PHYSICAL PROPERTIES			
Property Description	**Value**	**Property Description**	**Value**
Protein	497.452145	Total lipid (fat)	298.689017
Carbohydrate, by difference	2385.112289	Ash	309.121587
Energy	11983.847800	Starch	0.000000
Sucrose	11.249032	Glucose (dextrose)	30.254454
Fructose	55.020467	Lactose	0.000000
Maltose	0.000000	Alcohol, ethyl	0.000000
Water	251.833169	Adjusted Protein	0.000000
Caffeine	0.000000	Theobromine	0.000000
Energy	50130.766800	Sugars, total	650.584129
Galactose	1.542206	Fiber, total dietary	708.053991
Calcium, Ca	17481.358600	Iron, Fe	720.765854
Magnesium, Mg	6129.134875	Phosphorus, P	12977.209900
Potassium, K	53555.371300	Sodium, Na	50241.896350
Zinc, Zn	117.638569	Copper, Cu	15.882452
Manganese, Mn	58.381569	Selenium, Se	459.600067
Vitamin A, IU	410762.032200	Retinol	0.000000
Vitamin A, RAE	20543.091100	Carotene, beta	215695.652700

8.3 Raw Material Physical Property Report

This report lists the Raw Materials selected, in a tabular format with up to six selected physical properties.



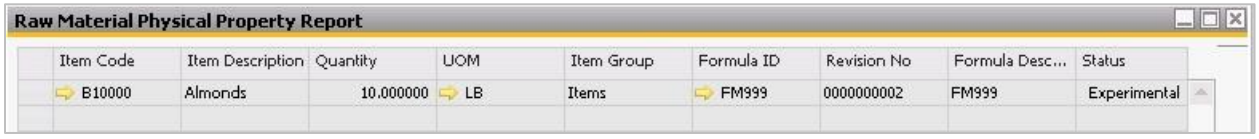
Item Code: The item ID(s) you want to report on.

Physical Property Range: Select from one to six physical properties.

Unit Type: Select the Quantity Unit type as any from Weight or Volume.

Print: Click the *Print* button to generate the report.

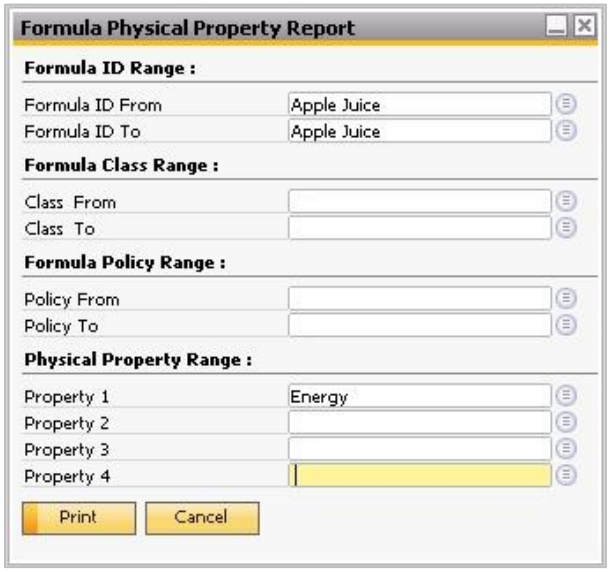
An example of a generated *Raw Material Physical Property Report* is provided below.



Property 1	Property 2	Property 3	Property 4	Property 5	Property 6
100.000000	120.000000	120.000000	0.000000	0.000000	0.000000

8.4 Formula Physical Property Report

Make data selections as detailed in earlier sections. Select at least one physical property.



Print: Click the *Print* button to generate the report.

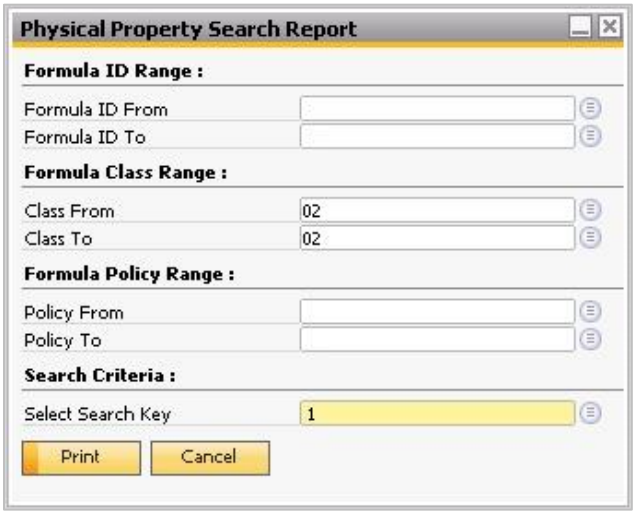
An example of a generated *Formula Physical Property Report* is provided below.

Formula Physical Property Report

Formula ID	Formula Description	Revision No	Property Va...	Property Value2	Property Value3	Property Value4	Status
Apple Juice							
	Apple Juice						
		0000000004					
			288,015.000	0.000	0.000	0.000	Active
Apple Juice							
	Apple Juice						
		0000000007					
			288,015.000	0.000	0.000	0.000	Pending
Apple Juice							
	Apple Juice						
		0000000008					
			294,995.000	0.000	0.000	0.000	Development
Apple Juice							
	Apple Juice						
		0000000009					
			461,754.879	0.000	0.000	0.000	Development
Apple Juice							
	Apple Juice						
		0000000010					
			288,015.000	0.000	0.000	0.000	Pending

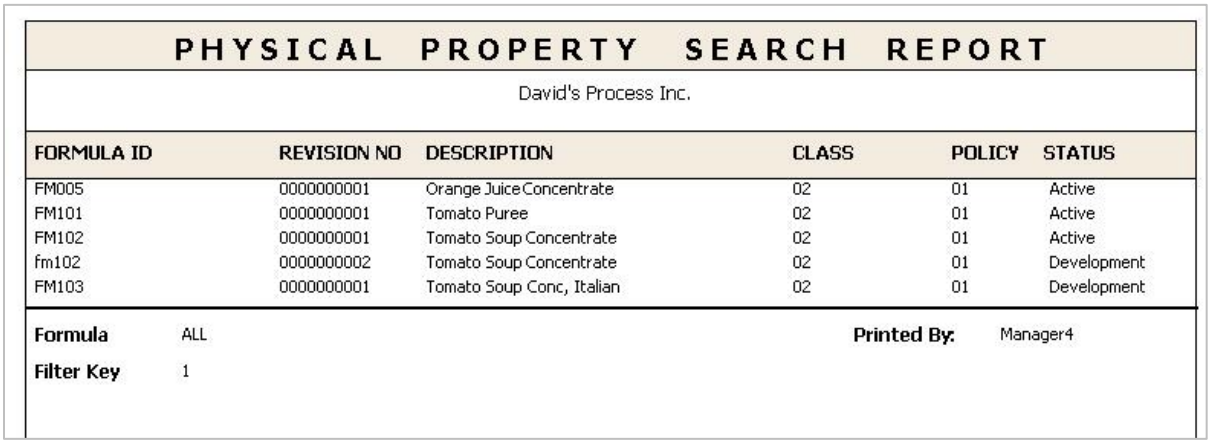
8.5 Physical Property Search Report

This report uses filters (defined at **Laboratory → Physical Property Search Filter)** to limit the formulas for which information is displayed. The example below (search key #1) looks for 'sugar free' formulas with a class code of '02'.



Print: Click the *Print* button to generate the report.

An example of a generated *Physical Property Search Report* is provided below.



PHYSICAL PROPERTY SEARCH REPORT

David's Process Inc.

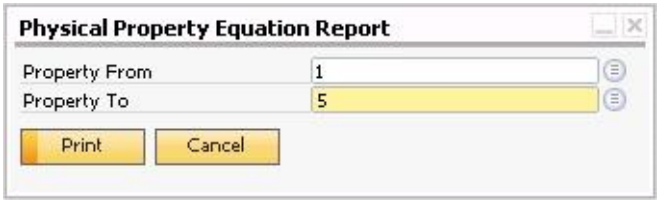
FORMULA ID	REVISION NO	DESCRIPTION	CLASS	POLICY	STATUS
FM005	0000000001	Orange Juice Concentrate	02	01	Active
FM101	0000000001	Tomato Puree	02	01	Active
FM102	0000000001	Tomato Soup Concentrate	02	01	Active
fm102	0000000002	Tomato Soup Concentrate	02	01	Development
FM103	0000000001	Tomato Soup Conc, Italian	02	01	Development

Formula ALL **Printed By:** Manager4

Filter Key 1

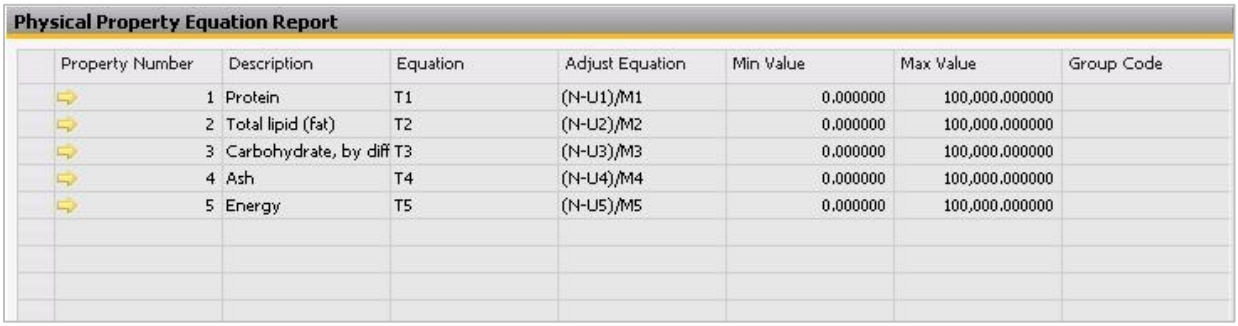
8.6 Physical Property Equation Report

This report displays the equations and minimum/maximum values for the selected physical properties. Click the lookup next to the field to see a list of physical properties. Choose the one(s) to report on from the list.



Print: Click the *Print* button to generate the report.

An example of a generated *Physical Property Equation Report* is shown below.



Physical Property Equation Report

Property Number	Description	Equation	Adjust Equation	Min Value	Max Value	Group Code
1	Protein	T1	(N-U1)/M1	0.000000	100,000.000000	
2	Total lipid (fat)	T2	(N-U2)/M2	0.000000	100,000.000000	
3	Carbohydrate, by diff	T3	(N-U3)/M3	0.000000	100,000.000000	
4	Ash	T4	(N-U4)/M4	0.000000	100,000.000000	
5	Energy	T5	(N-U5)/M5	0.000000	100,000.000000	