MATERIAL FORECAST - SETUP

Configuration Guide

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1   INTRODUCTION

The 'Material Forecast setup' module allows for the configuration of the options and parameters used in the Material Forecast module.

2   OPTIONS

In the **Marker usability** option, you can adjust the maximum age of markers to account for in the section plan calculation.

3   SET OF PARAMETERS

3.1   General description

There are 4 sets of parameters:

- **Material Class**: Describes the features of each material.

- **Table of efficiencies**: Collection of marker efficiency tables based on material class, width and total of sizes quantities.

- **Cutting Room**: These parameters describe the features associated with the equipment and the production process.

- **Ply control** (Generalities tables) : Defines the minimum number of plies to use for a given total of size quantity per marker.

These sets of parameters are used for calculating the Material Forecast section plans. The user must choose a parameter for each set, for each section plan.

Each set is saved in a pre-formatted Excel file.

3.2   Edit a set of parameters

Parameter values are edited using Excel files.

1.   Click on the set of parameters that needs to be edited.

2.   Click the **Export** button.

> It is important to export the current parameter values from the application to the Excel files. The first export saves a pre-formatted and unsaved parameter set model

3.   Edit the parameters in the exported file.
     Save the file.

> Chapter 4 "Parameter description", page 6 gives precise instructions on how to enter information in the cells.

4.   Click the **Import** button.

5.   Indicate the file to import.

> 💡 There is an interface dedicated to editing tables of efficiencies.
> See the 3.3 - Edit the 'tables of efficiencies paragraph, page 4.

3.3 Edit the 'tables of efficiencies' set

The 'Material forecast parameter' module provides an interface for editing tables of efficiencies.

Create a table

1. Click on the 'Table of efficiencies' set of parameters.

2. Click on the **Create** button to open a window where you can enter the:
   - the **Name**
   - the **Description**
   - the **Max. total Size quantity**
   - the **width Intervals:** Enter a terminal and click the **Add** button.
   To delete a terminal, click on the cross above the terminal.

3. Click on the **Create** button to confirm. And display the table of efficiencies. Each cell displays an efficiency of 80% by default.

4. Complete the information in the table (see the 'Complete the information in the table' paragraph, page 4).

5. It is possible to exclude one or several lines of the section plan calculation table. Settings are done in the **Used** table column. Click on the cell to move the state to another.

6. Click on the **Save** button.

Complete the information in the table

There are 3 ways to complete a table of efficiencies:

Manual editing:

It is possible to manually modify a value in a table of efficiencies. The cell is identified by a blue line.

Recalculate by designating markers:

It is possible to enter information in the table from the efficiencies of the markers marked to be designated. A table is 'Recalculated' when the old cell values are replaced.

1. Click the **Recalculate** button.

2. In the Marker search window, select the markers that need to be taken into account and Add them to the basket.

   > 💡 The Marker search window gives numerous sorting possibilities, on the left.

3. Click the **Calculate the table of efficiencies** button.
   The cells in the selection (total Quantity of sizes and width intervals) are marked with a

blue line. The number of markers used for the calculation is indicated in brackets. The values of non-concerned cells are not modified.

Automate the recalculation:

The automatic recalculation of the efficiency table function follows the following principal: When a marker from a section plan calculation is marked, its efficiency is taken into account in the efficiency table referenced in the section plan.

To automate the recalculation:

1. Click on the 'Table of efficiencies' set of parameters.
2. Click the **Automatically recalculate option for each new marker that has been entirely or partially marked**.

Modify the maximum quantity of sizes

It is possible to add efficiency table lines. Enter the maximum required quantity, then click the **Apply maximum quantity of sizes** button. Then **Save** the changes.

1. Enter the maximum total quantity of sizes in the field to the left of the **Apply maximum quantity of sizes** button.
2. Click the **Apply maximum quantity of sizes** button to add extra lines.
3. Click the **Save** button.

Duplicate a table

1. Select the table to duplicate.
2. Click the **Duplicate** button.
3. Enter a new table name
4. Click the **Duplicate** button.

Delete a table

1. Select the table to delete.
2. Click the **Delete** button.
3. Confirm by clicking the **Delete** button.

4 PARAMETER DESCRIPTION

It is important to prepare the parameter set describing a change of user. For example you can create one set per production process, one per type of material used, or one per expected level of quality...

4.1 Material Class

Materials with similar characteristics are grouped by class. **Material class** parameters enable you to describe the characteristics of each material.

Label	Description
Name	Parameter name
Description	Text explaining the conditions of use of each parameter.
Endloss (1/10 mm)	Length of material lost at end of ply. This length is given per ply; it is evenly distributed between the start and end of the spread. 💡 Endloss depends on the quality of the material, but also on the spreading equipment. The value of 4 cm (that is, 2 cm at each end) is an average value.
Marker Width < Material Width Tolerance (1/10 mm)	Allows existing markers narrower than the material to be used. The value entered corresponds to the maximum difference allowed between widths. ⚠️ Marker width: theoretical material width indicated in the marker characteristics. ⚠️ Material width: actual material width.
Marker Width > Material Width Tolerance (1/10 mm)	Allows existing markers wider than the material to be used. The value entered corresponds to the maximum difference allowed between widths. ⚠️ Marker width: theoretical material width indicated in the marker characteristics. ⚠️ Material width: Actual width of the material.
Max. Total of Sizes Quantities Section Length (1/10 mm)	Maximum length of a section (it is consequently the maximum length of a marker in a spread).

4.2 Cutting Room

The **Cutting room** parameters describe the features associated with the equipment and the production process:

- Cost per hour
- Speeds
- Setup time
- Spreading method
- Spreading parameters

- Localization

Label	Description
Name	Parameter name
Description	Text explaining the conditions of use of the parameter.
Currency	Indicate the currency you want to enter for the cost parameters. Use the Product Developer syntax (see : **Basis Item** > **Currency** > **Design code** > **Name**).
Spreading cost/hour	Cost per hour for expenses related to spreading: ▪ Equipment cost ▪ Labor cost ▪ Consumables cost ▪ Energy cost ▪ etc. The spreading process for a folded material may need an end-of-ply maintenance phase.
Cutting cost/hour	Cost per hour for expenses related to cutting: ▪ Equipment cost ▪ Labor cost ▪ Consumables cost ▪ Energy cost ▪ etc.
Offloading cost/hour	Cost per hour for expenses related to offloading: essentially labor.
Spreading Speed with Material Folding (m/min)	Average speed of the spreading process including material folding operation. This refers to the real average speed of the machine, not its maximum speed. The spreading process for a folded material may need an end-of-ply maintenance phase.
Offloading Speed (nb.bundles/hour)	Number of bundles offloaded in one hour. This refers to the real average speed of the machine, not its maximum speed. 300 bundles per hour is an average offloading time without sorting.
Cutting Speed (m/min)	Blade movement speed. This obviously depends on the equipment (manual or automatic cutting). This refers to the real average speed of the machine, not its maximum speed. Average cutting speed values are 0,6m/min for manual cutting using a straight knife and about 3m/min for an automatic cut.
Spreading Speed without Material Folding (m/min)	Average speed of the spreading process without material folding operation. This refers to the real average speed of the machine, not its maximum speed.

4.3 Table of efficiencies

The tables of efficiencies provide the marker efficiency estimations for the model, of the material...

A table displays the variation of the marker efficiencies (in %) according to the width interval (in cm) and the total quantity of sizes.

Sheet1: Table of efficiencies (Generalities tables)

The first sheet allows the general information to be entered for each table of efficiencies.

💡 There is therefore one line per table.

Label	Description
Name	Table name.
Description	Text explaining the conditions of use of each parameter.
Max. Total of Sizes Quantities Maximum total of size quantities per marker (across all variants).	The **Total of Size Quantities** is the sum of size quantities. See the examples below,

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Marker	Variant	Size	Quantity	Total of Size Quantities
Marker-1	Dress	S	5	9
	Skirts	L	4	
Marker-2	Jacket-Pants	L	3	5
	Jacket-Pants	X	L	

Sheet2: Efficiencies (Tables of efficiencies)

The second sheet allows all the contents of the tables mentioned in the first sheet to be entered.

The efficiencies are entered per width interval. The continuous intervals therefore need to be predicted for those where it is necessary to differentiate the efficiencies.

For example:

- Table n°1: For a width of 140 to 142 cm, the average efficiency of a marker for a total of sizes quantity 2 is 82%.
- Table n°1: For a width of 142 to 144 cm, the average efficiency of a marker for a total of sizes quantity 2 is 83.5%
- etc
- Table n°1: For a width of 140 to 142 cm, the average efficiency of a marker for a total of sizes quantity 2 is 82%.
- Table n°1: For a width of 142 to 144 cm, the average efficiency of a marker for a total of sizes quantity 2 is 83.5%
- etc

💡 Marker width: theoretical material width indicated in the marker characteristics.
Material width: actual material width.

> 💡 Width of material on which the pieces are to be nested. This measurement includes the selvages.

Label	Description
Name	Table name. The names must be the same as in sheet n°1.
Min. Marker Width (1/10 mm)	The lower limit of the marker width interval.
Max. Total of Sizes Quantities Marker Width (1/10 mm)	The upper limit of the marker width interval. An empty cell corresponds to an infinite value.
Maximum total of size quantities per marker (across all variants).	The Total of Size Quantities is the sum of size quantities per variant (across all variants). See the examples below, See table below
Efficiency (%)	Average efficiencies of markers. ⚠️ Efficiency is the percentage occupation of the material by the nested pieces.

Marker	Variant	Size	Quantity	Total of Size Quantities
Marker-1	Dress	S	5	9
	Skirts	L	4	
Marker-2	Jacket-Pants	L	3	5

4.4 Ply control

These parameters enable you to define tables to set the minimum number of plies to use for a given Total of Size Quantity per marker. For example, to propose a marker in a Total of Size Quantity 3, the system must be able to calculate at least 30 plies of material. If this is not possible, it must propose a marker that has fewer quantities.

Sheet1: Ply control (Generalities tables)

The first sheet allows general information to be entered in each table.

> ⚠️ There is therefore one line per table.

Label	Description
Name	Table name.

Label	Description
Description	Text explaining the conditions of use of each parameter.
Max. Total of Sizes Quantities Nb. of Plies	Upper limit for number of plies not to be exceeded. 💡 This value depends primarily on the equipment.
Nb. of Plies/Section/Color is Multiple of	The number of plies per section and per color will be a multiple of the value entered in this field. 💡 Fill in this field, for example, if the assembly program requires that the pieces be produced in batches of "n" pieces of the same color.

Sheet2: Values Minimum number of plies tables)

The second sheet allows all the contents of the tables mentioned in the first sheet to be entered. The minimum number of plies is entered per total size quantity. It is therefore necessary to list the quantity of sizes for which it is necessary to control the number of plies.

For example:

- Table n°1: The system only authorizes a marker of 3 sizes to be created if it is in a minimum of 30 plies
- Table n°1: The system only authorizes a marker of 4 sizes to be created if it is in a minimum of 40 plies
- etc
- Table n°2: The system only authorizes a marker of 3 sizes to be created if it is in a minimum of 25 plies
- Table n°2: The system only authorizes a marker of 4 sizes to be created if it is in a minimum of 30 plies
- etc

Label	Description
Name	Table name. ⚠️ The names must be the same as in sheet n°1.
Maximum total of size quantities per marker (across all variants).	Upper limit for the sizes quantity to be placed on a single marker. 💡 This value is essentially linked to the length of the spreading table. The Total of Size Quantities is the sum of quantities of variants in each size. See the examples below,

Marker	Variant	Size	Quantity	Total of Size Quantities
Marker-1	Dress	S	5	9
	Skirts	L	4	
Marker-2	Jacket-Pants	L	3	5

Label	Description
Min. Nb. of Plies	Minimum number of plies to create a marker. The marker must have a quantity of sizes between 1 and the limit shown in the **Total Quantity of Sizes** column.

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