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# Select unit with a rule

## Overview

Concerned	Supervisor
Subject	Units cannot be selected by a formula but, however, it is possible to introduce rules to select units.
Problem	Dyes quantities less than 10g must be expressed as a volume of a stock solution at 100% or 10%.
Solution	<p>As formulas cannot be introduced to select a unit, we will introduce in the dye operation two dyes lines, one with a unit expressed as a volume and the other with a unit expressed as a weight.</p> <p>To avoid from displaying twice a dye (one time for each unit), we will introduce a formula that sets quantity to zero when the unit is the wrong one. As the dyes quantities should not be definitively modified by these formulas, formulas will be set as 'display only'.</p>

## Units

## Write the rule

% % unit with result expressed as a weight

General		Settings	References				
ID:	%	AuxID:					
Name:	%						
Unit base type		Unit composition					
<input type="radio"/> g - weight <input type="radio"/> m - length <input type="radio"/> l - volume <input type="radio"/> ? - other <input type="radio"/> sec - time <input checked="" type="radio"/> relative		g / hg => g If Abs. amount >= <table border="1"> <tr> <th>Max value</th> <th>Result_ID</th> </tr> <tr> <td>1000</td> <td>kg</td> </tr> </table>		Max value	Result_ID	1000	kg
Max value	Result_ID						
1000	kg						

%' %' unit with result expressed as a volume

General		Settings	References				
ID:	%'	AuxID:					
Name:	percent - volume result						
Unit base type		Unit composition					
<input type="radio"/> g - weight <input type="radio"/> m - length <input type="radio"/> l - volume <input type="radio"/> ? - other <input type="radio"/> sec - time <input checked="" type="radio"/> relative		g / hg => ml 10% If Abs. amount >= <table border="1"> <tr> <th>Max value</th> <th>Result_ID</th> </tr> <tr> <td>10</td> <td>ml</td> </tr> </table>		Max value	Result_ID	10	ml
Max value	Result_ID						
10	ml						

ml

General		Settings	References
ID:	ml	AuxID:	
Name:	ml		
Unit base type		Conversion factor to base type	
<input type="radio"/> g - weight <input type="radio"/> m - length <input checked="" type="radio"/> l - volume <input type="radio"/> ? - other <input type="radio"/> sec - time <input type="radio"/> relative		1 ml = 0,001 l	

ml 10% ml 10% unit for solutions at 10%

General		Settings	References
ID:	ml 10%	AuxID:	
Name:	ml of 10% solution		
Unit base type		Conversion factor to base type	
<input type="radio"/> g - weight <input type="radio"/> m - length <input checked="" type="radio"/> l - volume <input type="radio"/> ? - other <input type="radio"/> sec - time <input type="radio"/> relative		1 ml 10% = 0,0001 l	

Operation

	<i>After 5 minutes add the dyestuffs</i>		
DISP	Disperse		<Formula> %
DISP	Disperse	Insert...	<Formula> %'
	<i>Check pH a</i>	<input checked="" type="checkbox"/> Display only formula	
pH	pH value		<Formula>

Both dyes lines are set as 'Display only formula'.

Formula that displays dyes over 10g

If Then Else Rule note:

If   Interpolate between each step

!< or =	!Then	!Min	!Max	Note
▶	10	0		

Else

Formula that display dyes less or equal to 10g

If Then Else Rule note:

If   Interpolate between each step

!< or =	!Then
▶	10 self

Else

# Application

Dyelot

Product Au...	Product Name	Rel. amnt	Amount
▶ DYE C5G	Dispersol Yellow C5G	0,00038 %	0,376 g
DRD C4G	Dispersol Red C4G (G)	0,03102 %	31,023 g
DBU G	Dispersol Blue (G)	0,00113 %	1,129 g

Weight: 100 kg      Liquor ratio: 1/10  
 Length: [ ]      Reload recipe      Total volume: 1000 l

Create new add  
Correction

RGB...	N...	in Use	Product	Dyestuff	Parameter	TotalPrice	OperTime
▶	0		1,8	0,7018	41	43,5018	13

€0,00    €0,00    €0,00    €0,00    min

Product ID	Product Name	Rec.Amnt	Rsrv.	Amount	Wgh. dev.
▶ CIB-APS	Cibatex APS	1 %	<input checked="" type="checkbox"/>	1,000 kg	
DRD C4G	<b>Dispersol Red C4G (G)</b>	0,03102 %	<input checked="" type="checkbox"/>	31,02 g	
DYE C5G	<b>Dispersol Yellow C5G</b>	0,00038 %	<input checked="" type="checkbox"/>	3,76 ml 10%	
DBU G	<b>Dispersol Blue (G)</b>	0,00113 %	<input checked="" type="checkbox"/>	1,13 ml	

Process Graph  
Generate

Production card

DRD C4G	<b>Dispersol Red C4G (G)</b>	0,0310%	<b>31,02 g</b>	<b>After 5 minutes add the dyestuffs</b> ----- DYE C5G <b>Dispersol Yellow C5G</b> 0,0004% <b>3,76 ml 10%</b> DBU G <b>Dispersol Blue (G)</b> 0,0011% <b>1,13 ml</b> <b>Check pH after 5 minutes</b>
DYE C5G	<b>Dispersol Yellow C5G</b>	0,0004%	<b>3,76 ml 10%</b>	
DBU G	<b>Dispersol Blue (G)</b>	0,0011%	<b>1,13 ml</b>	

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 pH value      €      Correct with A

## Extensions

Other conditions may be introduced in the formulas (change unit only in case of machine group ...).

In this example, the selection of the stock solution is done via the unit (ml or ml 10%). If the choice of the stock solution is complex, it may be done via other dyes lines with the stock solutions units and related formulas.