



# PRODUCT EXAMPLE PROCESSED CHEESE



Elaine works for a cheese manufacturer. She needs to do the following:

- Optimize a processed cheese formula to meet a variety of compositional requirements while minimizing costs.
- Create a nutrition facts panel.
- Create an ingredient statement.
- Create a “milk based” ingredient statement

## Create Recipe

Elaine starts by entering in TechWizard™ the composition she requires her processed cheese to possess, for example, setting how much fat, emulsifier, etc. Here we see a portion of the

TechWizard™ screen after Elaine inputs her desired properties shown on the left portion of the screen (A) and enters ranges for these properties and ratio properties (B).

**Ratio Properties**

Edit Help

Formulate	Property	Composition	Units	Diag.	Min	Max
Yes	FDM		%		42.500	43.000
Yes	Lactose/Water		%		10.000	15.000
Yes	Ortho/Water		%		4.000	4.000

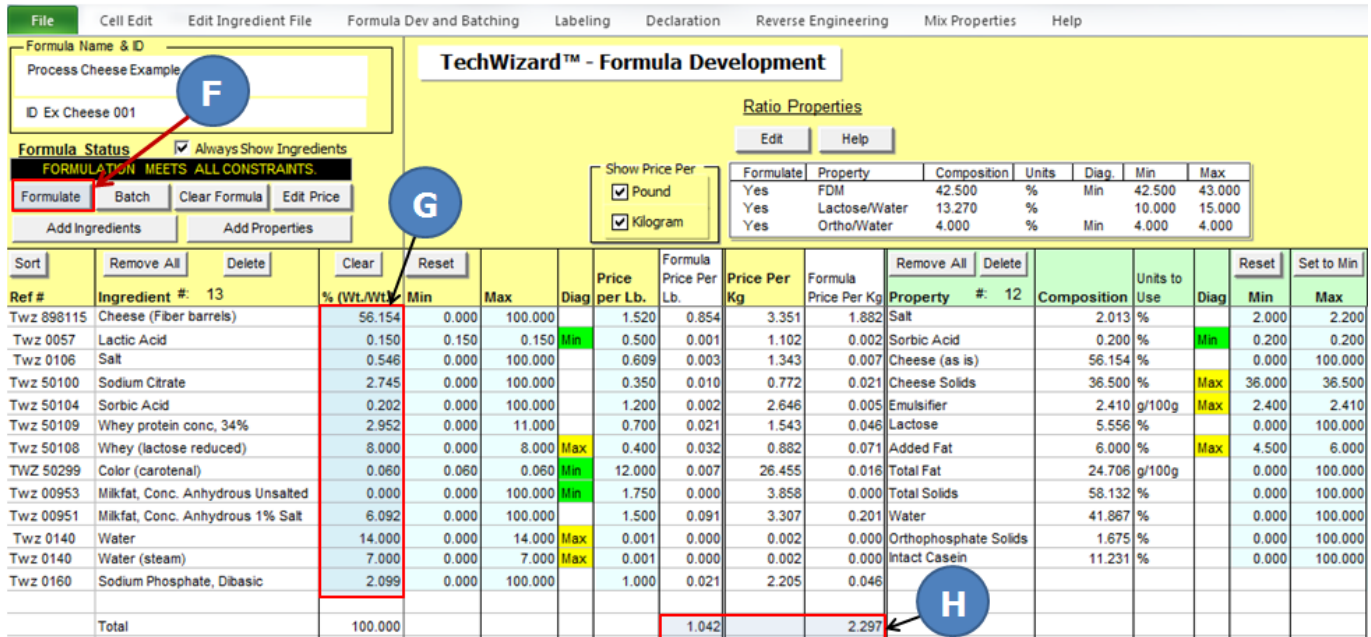
  

Property #	Composition	Units to Use	Diag	Reset Min	Set to Min Max
Sorbic Acid	0.000	%		0.200	0.200
Cheese (as is)	0.000	%		0.000	100.000
Cheese Solids	0.000	%		36.000	36.500
Emulsifier	0.000	g/100g		2.400	2.410
Lactose	0.000	%		0.000	100.000
Added Fat	0.000	%		4.500	6.000
Total Fat	0.000	g/100g		0.000	100.000
Total Solids	0.000	%		0.000	100.000
Water	0.000	%		0.000	100.000
Orthophosphate Solids	0.000	%		0.000	100.000
Intact Casein	0.000	%		0.000	100.000

This illustrates the TechWizard™ screen after Elaine has selected the ingredients she intends to use. The ingredient description (C) is shown on the left portion of the screen. The price (D) is displayed on the right. Elaine needs to set usage levels for some of her ingredients. She does so by entering the values she requires (E).

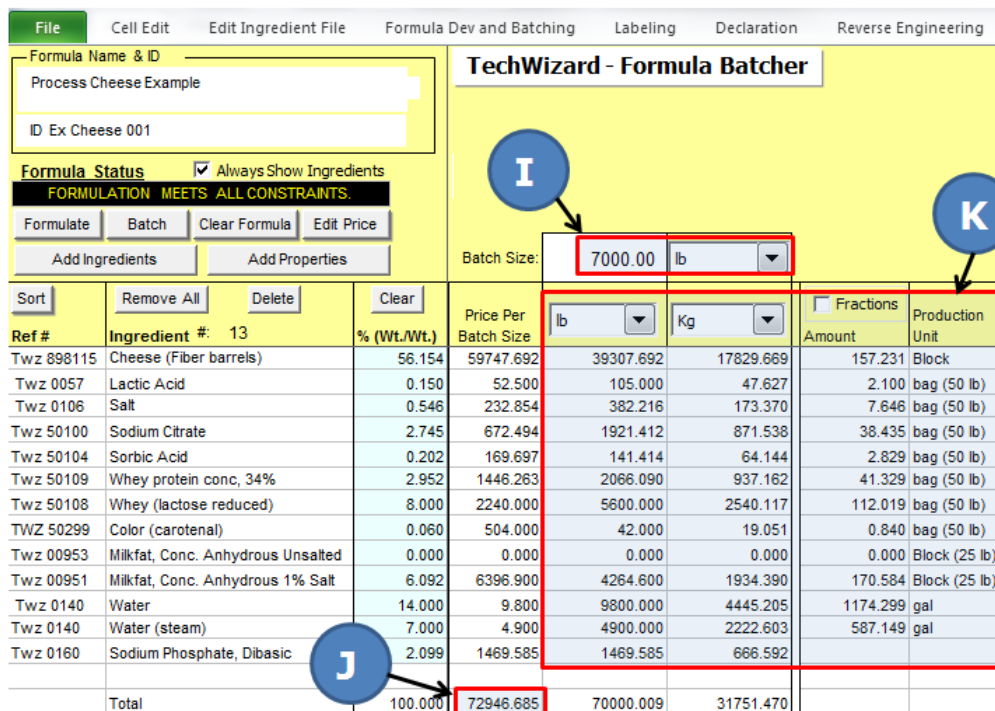
Sort	Remove All	Delete	Clear	Reset	Min	Max	Diag	Price per Lb.
Ref #	Ingredient #	% (WT./WT.)						
Twz 898115	Cheese (Fiber barrels)				0.000	100.000		1.520
Twz 0057	Lactic Acid				0.150	0.150		0.500
Twz 0106	Salt				0.000	100.000		0.609
Twz 50100	Sodium Citrate				0.000	100.000		0.350
Twz 50104	Sorbic Acid				0.000	100.000		1.200
Twz 50109	Whey protein conc, 34%				0.000	11.000		0.700
Twz 50108	Whey (lactose reduced)				0.000	8.000		0.400
Twz 50299	Color (carotenal)				0.060	0.060		12.000
Twz 00953	Milkfat, Conc. Anhydrous Unsalted				0.000	100.000		1.750
Twz 00951	Milkfat, Conc. Anhydrous 1% Salt				0.000	100.000		1.500
Twz 0140	Water				0.000	14.000		0.001
Twz 0140	Water (steam)				0.000	7.000		0.001
Twz 0160	Sodium Phosphate, Dibasic				0.000	100.000		1.000

Elaine presses the **Formulate** button (F). This instructs TechWizard™ to find the best combination of ingredients to meet all her composition requirements while minimizing cost. The percent of each ingredient to use (G) is calculated and the formula cost per pound and per kilogram are reported (H).



Ref #	Ingredient #	% (Wt./Wt.)	Min	Max	Diag	Price per Lb.	Formula Price Per Lb.	Price Per Kg	Formula Price Per Kg	Property #	Composition	Units to Use	Diag	Min	Max
Twz 898115	Cheese (Fiber barrels)	56.154	0.000	100.000		1.520	0.854	3.351	1.882	Salt	2.013 %	%	2.000	2.200	
Twz 0057	Lactic Acid	0.150	0.150	0.150	Min	0.500	0.001	1.102	0.002	Sorbic Acid	0.200 %	Min	0.200	0.200	
Twz 0106	Salt	0.546	0.000	100.000		0.609	0.003	1.343	0.007	Cheese (as is)	56.154 %	%	0.000	100.000	
Twz 50100	Sodium Citrate	2.745	0.000	100.000		0.350	0.010	0.772	0.021	Cheese Solids	36.500 %	Max	36.000	36.500	
Twz 50104	Sorbic Acid	0.202	0.000	100.000		1.200	0.002	2.646	0.005	Emulsifier	2.410 g/100g	Max	2.400	2.410	
Twz 50109	Whey protein conc, 34%	2.952	0.000	11.000		0.700	0.021	1.543	0.046	Lactose	5.556 %	%	0.000	100.000	
Twz 50108	Whey (lactose reduced)	8.000	0.000	8.000	Max	0.400	0.032	0.882	0.071	Added Fat	6.000 %	Max	4.500	6.000	
TWZ 50299	Color (carotenal)	0.060	0.060	0.060	Min	12.000	0.007	26.455	0.016	Total Fat	24.706 g/100g	%	0.000	100.000	
Twz 00953	Milkfat, Conc. Anhydrous Unsalted	0.000	0.000	100.000	Min	1.750	0.000	3.858	0.000	Total Solids	58.132 %	%	0.000	100.000	
Twz 00951	Milkfat, Conc. Anhydrous 1% Salt	6.092	0.000	100.000		1.500	0.091	3.307	0.201	Water	41.867 %	%	0.000	100.000	
Twz 0140	Water	14.000	0.000	14.000	Max	0.001	0.000	0.002	0.000	Orthophosphate Solids	1.675 %	%	0.000	100.000	
Twz 0140	Water (steam)	7.000	0.000	7.000	Max	0.001	0.000	0.002	0.000	Intact Casein	11.231 %	%	0.000	100.000	
Twz 0160	Sodium Phosphate, Dibasic	2.099	0.000	100.000		1.000	0.021	2.205	0.046						
Total		100.000						1.042	2.297						

Elaine prepares a 7000 pound batch (I) and determines the raw ingredient cost (J) for that amount. Notice that she is reporting the ingredient amounts in a variety of units of measure (K).



Ref #	Ingredient #	% (Wt./Wt.)	Price Per Batch Size	lb	Kg	Amount	Production Unit
Twz 898115	Cheese (Fiber barrels)	56.154	59747.692	39307.692	17829.669	157.231	Block
Twz 0057	Lactic Acid	0.150	52.500	105.000	47.627	2.100	bag (50 lb)
Twz 0106	Salt	0.546	232.854	382.216	173.370	7.646	bag (50 lb)
Twz 50100	Sodium Citrate	2.745	672.494	1921.412	871.538	38.435	bag (50 lb)
Twz 50104	Sorbic Acid	0.202	169.697	141.414	64.144	2.829	bag (50 lb)
Twz 50109	Whey protein conc, 34%	2.952	1446.263	2066.090	937.162	41.329	bag (50 lb)
Twz 50108	Whey (lactose reduced)	8.000	2240.000	5600.000	2540.117	112.019	bag (50 lb)
TWZ 50299	Color (carotenal)	0.060	504.000	42.000	19.051	0.840	bag (50 lb)
Twz 00953	Milkfat, Conc. Anhydrous Unsalted	0.000	0.000	0.000	0.000	0.000	Block (25 lb)
Twz 00951	Milkfat, Conc. Anhydrous 1% Salt	6.092	6396.900	4264.600	1934.390	170.584	Block (25 lb)
Twz 0140	Water	14.000	9.800	9800.000	4445.205	1174.299	gal
Twz 0140	Water (steam)	7.000	4.900	4900.000	2222.603	587.149	gal
Twz 0160	Sodium Phosphate, Dibasic	2.099	1469.585	1469.585	666.592		
Total		100.000	72946.685	70000.009	31751.470		

At this point she can prepare a batch sheet report if she wishes. Elaine saves this version of her formula for use later by clicking **Save Formula** in the **File** menu (not shown).

## Create Nutrition Facts Panel and Ingredient Statement

Elaine is satisfied with her formula. She uses TechWizard™ labeling features to create a tabular nutrition facts panel, a regular ingredient statement, and a “milk based” ingredient statement.

<b>Nutrition Facts</b>	Amount Per Serving	% Daily Value*	Amount Per Serving	% Daily Value*	*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs: Calories: 2,000 2,500
	Serving Size 2 slices (25g) Servings Per Container 50 Calories 80 Calories from Fat 60	<b>Total Fat 6g</b>	<b>9%</b>	<b>Total Carbohydrate 2g</b>	
	Saturated Fat 6g	30%	Dietary Fiber 0g	0%	
	Trans Fat 0g		Sugars 2g		
	Cholesterol 20mg	7%	<b>Protein 4g</b>		
	<b>Sodium 480mg</b>	<b>20%</b>			
	Vitamin A 8%	•	Vitamin C 0%	•	Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4
			Calcium 15%	•	
			Iron 0%		

### **REGULAR INGREDIENT STATEMENT:**

INGREDIENTS: CHEDDAR CHEESE, WATER, DELACTOSED WHEY, ANHYDROUS MILK FAT, WHEY PROTEIN, SODIUM CITRATE, SODIUM PHOSPHATE, SALT, SORBIC ACID, LACTIC ACID, ARTIFICIAL COLOR.

### **“MILK BASED” INGREDIENT STATEMENT:**

INGREDIENTS: CULTURED MILK, CREAM, DELACTOSED WHEY, SALT, SODIUM CITRATE, SODIUM PHOSPHATE, SORBIC ACID, LACTIC ACID, ENZYMES, ARTIFICIAL COLOR.

## Versatility

TechWizard™ can do much more than what was described here. Please feel free to contact us to learn more.