



AMERICERT INTERNATIONAL

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Guidance on Completing Module H9: Product Formulation
Product Composition Calculations for “Organic” Label Claims
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This guidance explains some of nuances of calculating the organic composition of products seeking an “Organic” label claim. This guidance does not apply to products seeking a “100% Organic” label claim or “Made with Organic (Specified Food Groups or Ingredients).”

Some applicants for organic certification have difficulty in calculating the organic product composition of a product for which they are seeking certification, because there are some complexities involved in this calculation. Some applicants believe that their product meets the product composition requirements, only to receive a Notice of Noncompliance indicating that the product does not meet the product composition requirements for an “Organic” product. Usually, this is because they have missed some of the nuances of conducting this calculation.

Section I: Basic Requirements and Process for an “Organic” Label Claim

A. Basic Requirements of Section 205.301 of the USDA Regulations

To qualify for an “Organic” label claim, a product must contain (by weight or fluid volume, excluding water and salt) not less than 95 percent organically produced ingredients. Organic content must be calculated from the weight of ingredients at formulation (i.e., before processing such as baking or cooking).

For products with all solid ingredients, weight is used. For products with all liquid ingredients, volume is used. For products containing both solid and liquid ingredients, weight is used.

Any non-organic ingredients in the product must be specifically allowed in section 205.605 or 205.606. In addition, for any non-organic ingredients, any annotation in 205.605 or 205.606 must be met, and a commercial availability search for organic varieties must be conducted if the ingredient is a natural flavor or is listed in 205.606. Non-organic ingredients cannot comprise more than 5% of weight or fluid volume (excluding water and salt) of the total formulated product.

B. Basic Process for Calculating Organic Content

The percentage of organic content must be determined by the handler who affixes the label on the consumer package and verified by the certifying agent of that handler. Americert’s **Module H9 Product Formulation** walks applicants through the process described below. In general, the organic content of a finished product is determined as follows:

1. Total the weight or fluid volume of all non-water, non-salt ingredients at formulation (i.e., before processing such as baking or cooking). If a product contains both solid and liquid ingredients, weight must be used for calculation.
2. List the weight/volume of each individual organic ingredient and non-organic ingredient. Liquid ingredients being reconstituted from concentrates should be calculated based on single-strength concentrations. Single-strength is defined by FDA 21 CFR 101 as equivalent to the Brix value of 100%



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juice. Reconstitution is taking a concentrated juice product and adding water to dilute the concentrated juice back to single-strength values.

3. Determine the contributed organic content of each organic ingredient by, in most cases, multiplying the gross weight of the individual organic ingredient by the following factor based upon the ingredient’s certified organic label claim:
 - a. An ingredient certified as “100% Organic” is entitled to full credit for its organic content. In such cases, the gross weight of the ingredient is multiplied by 1 (i.e. the gross weight is the same as the net weight of the organic ingredients).

 - b. An ingredient certified as “Organic” is only entitled to partial credit for its organic content. In most cases, it is only entitled to 95% credit towards organic content. In such cases, the gross weight of the “Organic” ingredient is multiplied by 0.95 in determining the net organic content the ingredient contributes towards the total organic content (i.e. 1 pound of an “Organic” ingredient contributes only 0.95 lbs of organic content).

 - c. Do not round these numbers up.

 4. Total the gross weight of all organic and non-organic ingredients.

 5. Total the net factored weight of all organic ingredients.

 6. Divide the net factored weight of all organic ingredients by the gross weight of all organic and non-organic ingredients. Do not round this number up. The final value is rounded down to the nearest whole number.
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Section II: Examples

A. Example 1

An applicant applies for an “Organic” label claim of a popsicle which will consist of “organic” lemon juice single-strength, and “100% Organic” strawberry puree, as well as water. The actual batch recipe is as follows:

- 1 gallon (8 lbs) of certified “Organic” lemon juice single-strength
- 5 gallons (50 lbs) of certified “100% organic” strawberry puree
- 1 gallon (8 lbs) of water.

1. To calculate the gross volume of each ingredient, we use the figures listed but disregard the water. This yields a gross weight calculation as follows:

- 1 gallon “Organic” Lemon Juice single-strength
- 5 gallons “100% Organic” strawberry puree.

Total Gross Volume: 6 gallons



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2. Then we calculate the organic content contributed for each ingredient using the factors cited above:

“Organic” Lemon Juice Single Strength:

1 gallon X 0.95 = 0.95 gallons contributed to organic content of

“100% Organic” Strawberry Puree: Since this product is certified “100% Organic” it is entitled to full credit for this ingredient, so the organic content is the same as its gross volume (i.e., 5 gallons).

Accordingly, the organic content of the formulation is 5.95 gallons.

3. To calculate the total organic content of the finished product, we take the organic content calculated above and divide it by the gross volume of all non-water non-salt ingredients:

$$5.95 / 6 = 0.9916$$

Take the result of that calculation and multiply it by 100 to obtain the net percent organic content in the product. In this case, it is 99.16% organic.

This product would qualify for an “Organic” label claim as it contains a minimum of 95% organic content.

B. Example 2

Note that if we slightly alter the formula, the product’s total organic content drops merely because of the label claims of the ingredients:

1 gallon “100% Organic” Lemon Juice single-strength
5 gallons “Organic” strawberry puree.

Total Gross Volume: 6 gallons

Factored Organic Content:

1 gallon X 1 = 1 gallon organic content for the “100% Organic” Lemon Juice single-strength

5 gallons X 0.95 = 4.75 gallons organic content for the “Organic” strawberry puree.

$$1 + 4.75 = 5.75 \text{ organic content}$$

When we calculate the total organic content of the product, we see that this product’s total organic composition has dropped to 95.83%.

$$5.75 / 6 = 0.9583$$
$$0.9583 \times 100 = 95.83\%$$



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Section III: The Most Common Error

The most common error is assigning an ingredient with only an “Organic” label claim full credit for its organic content. A typical situation is as follows:

Formulation:

“Organic” Lemon Juice single strength 1 gallon

“Organic” Strawberry Puree 1 gallon

Non-Organic Xanthan Gum 0.02 gallons

Gross Weight of All Ingredients: 2.02 gallons

Factored Organic Ingredients: “Organic” Lemon Juice (1 gallon x .095 = 0.95), “Organic” Strawberry Puree (1 gallon x 0.95 = 0.95). Total Net Organic Contribution= 1.9 gallons organic content.

When the total organic content as a percentage is calculated ($1.9 / 2.02 = .9405$), we see that the total organic content is 94.05% (no rounding up) organic and that this product would not meet the “Organic” label claim as it does not contain 95% organic ingredients.

In fact, as a matter of math, you can never have a product meet the “Organic” label claim if it consists solely of “Organic” ingredients and any amount of a non-organic ingredient.

If a product is seeking an “Organic” label claim, and contains any non-organic ingredients, it will have to contain some “100% Organic” ingredients (enough to boost the final product’s total percentage of all organic content to 95%) to meet the product composition requirements.

Section IV: Advanced Product Composition Issues for an “Organic” Label Claim

A. An Exception for Certain “Organic” Ingredients

Hopefully, the foregoing has made the issues with calculating the percentage of organic content in a formulated product a little more clear. Please do not read the following section unless you feel like you have a firm understanding of the foregoing sections. We are about to make it a little more complicated.

There are some situations where an ingredient with an “Organic” label claim can be given full credit for its weight towards the total organic content of the product. This is true only when the total formulated product is seeking an “Organic” label claim. Ingredients in an “Organic” product which can be given 100% credit for its organic content (i.e. be treated as if it was certified “100% Organic” for the purposes of calculating the total organic content) are ingredients which meet one of the following criteria:

1. The certified “organic” ingredient is a raw, unprocessed agricultural crop. It is common for certifying agents to certify raw unprocessed crops which come off of farms as “Organic” rather than “100% Organic.” When the ingredient is a raw unprocessed crop (e.g. fresh blueberries), it may be given 100% credit for its organic content, even though it is not certified as “100% Organic.” To document that the ingredient falls into this exception, no particular additional documentation is needed as long as it is obvious that the ingredient is indeed a raw unprocessed agricultural crop which is certified as “Organic”.



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2. The certified “Organic” ingredient consists of a single ingredient which contains no non-organic ingredients (e.g. organic lemon juice which has no other ingredients). To document that the ingredient falls into this exception, specific documentation must be obtained and provided which states that the certified organic ingredient contains no non-organic ingredients or sub-ingredients. This can be a statement from the supplier, the certifying agent of the supplier, or a COA or product specification can meet this requirement if it clearly establishes the point.

In such circumstances as the two stated above, for a product seeking an “Organic” label claim, a product which is certified “Organic” can nonetheless be given 100% credit for its organic content by weight.

B. An Exception for Specific Confirmation of Percent Organic Content of an Ingredient

Because a product with an “Organic” label claim can in fact contain anywhere between 95% and 100% organic content, there may be cases where the certifying agent for the supplier is able to confirm the exact organic content of a product with an “Organic” label claim. If such documentation is obtained by you, you may use the exact verified organic content of that ingredient in calculating the ingredient’s contribution of organic content to the final product. For instance, in our examples earlier, we considered “Organic” lemon juice single strength to contain 95% organic content. If the certifying agent for the lemon juice single strength provided documentation that the organic lemon juice single strength consisted of organic lemon juice with added non-organic citric acid, and that the total organic content was 99% organic, then when determining the factor by which the gross weight of the ingredient should be multiplied to determine the net organic content, one would use the 99% figure as follows:

Formulation:

- “Organic” Lemon Juice single strength (with specific documentation that the organic content is 99% organic) 1 gallon
- “Organic” Strawberry Puree 1 gallon
- Non-Organic Xanthan Gum 0.02 gallons

Gross Weight of All Ingredients: 2.02 gallons

Factored Organic Ingredients: “Organic” Lemon Juice (1 gallon x 0.99 = 0.99), “Organic” Strawberry Puree (1 gallon x .95 = 0.95). Total Net Organic Contribution= 1.94 gallons organic content.

When the total organic content as a percentage is calculated ($1.94 / 2.02 = .9603$), we see that the total organic content is 96.03% (no rounding up) organic and that this product would meet the “Organic” label claim as it does contain at least 95% organic ingredients.