



Draft Guidance

Calculating the Percentage of Organic Ingredients in Multi-Ingredient Products

1. Purpose and Scope

The USDA organic regulations establish labeling categories for organic products based on the percentage of organic ingredients in the product. Products labeled “organic” must have a minimum of 95% organic ingredients, and those labeled “made with organic (specified ingredients or food group(s))” must have a minimum of 70% organic ingredients. Products containing less than 70% organic ingredients can list organic ingredients on the ingredient panel as well as the organic ingredient percentage on the information panel, although they cannot claim “organic” on the principal display panel.

The USDA organic regulations describe calculation of the percentage of organically produced ingredients in Section 205.302. Certifying agents have interpreted 205.302 differently, leading to an inconsistent application of the regulations. This guidance clarifies the standards for calculating organic percentages for finished products to consistently implement USDA regulations.

This guidance provides guidelines to all USDA-accredited certifying agents (certifiers) and certified and exempt organic operations on how to calculate the organic ingredient percentage in multi-ingredient products. More specifically, this guidance provides procedures on how to:

- 1) Calculate organic percentages of multi-ingredient ingredients used in organic processed products.
- 2) Determine the organic content of single-ingredient ingredients (raw or processed).
- 3) Exclude water from ingredients used in organic processed products.
- 4) Calculate the organic content of carbonated beverages.
- 5) Exclude salt from ingredients used in organic processed products.

2. Background

The National Organic Standards Board (NOSB), a federal advisory committee that advises the USDA on organic issues, made a recommendation related to the calculation of organic percentages in multi-ingredient products in April 2013. The NOSB recommendation asked the NOP to:

- 1) Correct the regulatory language at §205.302(a) to clarify that organic percentages should be calculated by dividing the total net weight (excluding water and salt) of combined organic ingredients at formulation by the total net weight (excluding water and salt) of all ingredients. The NOSB recommended that the percentage of organic ingredients in a product should be calculated based on the net weight of “all ingredients” in that product, and not the net weight of the “finished product” because most products lose weight during processing;



- 2) Clarify how to calculate the organic percentages of a multi-ingredient product that contains ingredients that are themselves composed of more than one ingredient;
- 3) Clarify when to exclude salt and water from ingredients;
- 4) Provide guidance on how to calculate raw agricultural product and processed single-ingredient ingredients; and to
- 5) Develop and publish example self-calculating forms on items related to the organic percentage of each ingredient and the exclusion of salt and water.

This guidance addresses this NOSB recommendation. The scope of this guidance does not cover how the use of sanitizers or other materials affects the 100% Organic labeling claim.

3. Policy and Procedure

3.1: Calculating the organic content of multi-ingredient ingredients and products

Formulated multi-ingredient certified organic products often contain organic ingredients that are themselves composed of multiple ingredients. Section 205.302(a)(1) states the method of calculation as “[d]ividing the total net weight (excluding water and salt) of combined *organic ingredients* at formulation by the total weight (excluding water and salt) of the finished product.” [Emphasis added.] To accurately calculate the organic percentage, it is necessary to divide the total net weight (excluding water and salt) of combined *organic ingredients* at formulation by the total weight (excluding water and salt) of *all ingredients*.

3.1.1: Certified “Organic” or “Made with Organic” ingredients that are themselves composed of multiple ingredients

For products that have ingredients composed of multiple ingredients (also referred to as “multi-ingredient ingredients”), the exact organic content should be obtained of that multi-ingredient ingredient when calculating the total organic content of the final organic product. Alternatively, these ingredients should be calculated as contributing either 95% organic content or 70% organic content depending on how the product is classified on the certificate (i.e., either “organic” or “made with organic (specified ingredients or food groups)” respectively). If the multi-ingredient ingredient used in a product formulation is to be counted as contributing more than 95% or more than 70% organic ingredients (depending on the certification classification of the product) certified organic handlers should:

- Calculate the multi-ingredient ingredients by breaking them down into their constituent parts to distinguish between the organic and non-organic content of the ingredient. The calculation will account for the real organic constituents in the product.
- Provide their certifier with supporting documentation (for example, written confirmation from the certified organic supplier of the multi-ingredient ingredient) that substantiates the organic content claim of a multi-ingredient ingredient.



3.1.2: Added Water and Salt

The percentages of water and salt *added* during the manufacture of the ingredient, and that *remain* in the ingredient, should be disclosed by the organic ingredient supplier. Certified operations must keep records to demonstrate to their certifier that the final product calculations supplied to the certifier have excluded the relevant salt/water from incoming organic ingredients.

However, when water is listed as an ingredient of an FDA recognized standardized food and that product is used as an ingredient in a multi-ingredient food, the water does not have to be disclosed by the organic ingredient supplier and does not need to be excluded when calculating the percentage of organically produced ingredients.

3.1.3: Organic Claim vs Organic Content

As specified in 205.302, the organic content or percentage of an ingredient or product is based on the percentage of organic ingredients. Processing aids are not ingredients; therefore they should not impact the organic ingredient percentage of an ingredient/product. The use of a non-organic processing aid prevents the ingredient/product from being labeled as “100% Organic,” but if the organic ingredient/product is composed of 100% organic ingredients, it can be calculated as contributing 100% organic content when it is used in a multi-ingredient organic product.

See Appendix A for an example calculation for a multi-ingredient product that contains multi-ingredient ingredients, water and salt.

3.2: Calculating the organic content of single-ingredient ingredients, processed or raw

3.2.1: Processed single ingredients

Processed single-ingredient ingredients (excluding added water and/or salt) can be determined by handlers, manufacturers and certifiers to contribute 100% organic content in a multi-ingredient formulation, even if they are listed as “organic” on a certificate. An example is sugar, which is processed with calcium hydroxide as a processing aid. The exception is for single-ingredient ingredients that are processed according to the NOP but the ingredient is significantly different from the raw condition (refer to 3.2.2 for a link to the definition of *raw agricultural commodity*). Examples include, but are not limited to:

- Organic glycerin where organic oils are processed with materials on the National List and a new product is produced, which would still contain a portion of non-organic material; or
- Sliced organic apples that have been dipped in a solution composed of materials on 205.605.

In these cases, handlers should obtain verification from the ingredient supplier regarding the ingredient’s organic content unless the organic certificate for the ingredient identifies it as “100% organic.”



3.2.2: Single ingredients that are raw agricultural commodities¹

Raw agricultural ingredients can be determined by handlers, manufacturers and certifiers to contribute 100% organic content in a multi-ingredient formulation, even if they are listed as “organic” on a certificate.

3.3: When to include or exclude water from the organic calculation for specific ingredients

The following guidance applies to products that contain added water, specifically, juices, multi-ingredient formulations such as chicken stock, soy beverages, almond beverages, rice beverages, ready to drink tea/coffee products, or products containing those ingredients.

3.3.1 Juices with an FDA Standard of Identity

The USDA organic regulations at §205.302(a)(2), state “[i]f the liquid product is identified on the principal display panel or information panel as being reconstituted from concentrates, the calculation should be made on the basis of single-strength concentrations of the ingredients and finished product.” In order to ascertain the single strength juice value of a concentrate, the FDA regulations can be consulted at 21 CFR §101.30(h)(1), which provides a table stating the minimum brix² levels for various single strength juices. This table is a tool for calculating the quantity of water that can be added to organic juice concentrates to bring them to single strength. This water is considered a part of the organic content of the juice product.

See Appendix B for an example calculation of organic juice, when the specific fruit/vegetable juice has a standard of identity and the single strength brix is listed at 21 CFR §101.30(h)(1).

3.3.2 Juices without an FDA Standard of Identity

Not all types of juices are specified in the FDA’s table. Examples include, but are not limited to, aloe vera juice, acai juice, and noni juice. FDA 21 CFR §101.30(h)(2) states “[i]f there is no brix level specified in paragraph (h)(1) of this section, the labeled percentage of that juice from concentrate in a juice or juice beverage will be calculated on the basis of the soluble solids content³ of the single-strength (unconcentrated) juice used to produce such concentrated juice.”

¹ *Raw agricultural commodity.* Any food in its raw or natural state, including all fruits that are washed, colored, or otherwise treated in their unpeeled natural form prior to marketing (Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 321(r)). Substances used for coloring or coating must be permitted as per § 205.605 or § 205.606 of the National List.

² *Brix (°bx)* is the sugar content of an aqueous solution. One degree brix is 1 gram of sucrose in 100 grams of solution and represents the strength of the solution as a percentage by mass. It is determined by a brix refractometer.

³ *Soluble Solid Content or Total Soluble Solids* is the sum solids that are in solution. It is a measure of the amount of material remaining after all the water has been evaporated. Soy beverage solids can be measured by a refractometer.



NOP recognizes that specific brix levels are not provided for every type of juice derived from organic fruits and vegetables. In order to ascertain the single strength juice value of a fruit or vegetable juice that is not listed in §101.30(h)(1), the certified operation may submit to the certifier documentation for the organic juice concentrate verifying the soluble solids content of the original unconcentrated single strength juice. Such documentation may include a specification sheet, laboratory results, or similar document, to justify the quantity of water that can be added to organic juice concentrates to bring them to single strength. This water is considered a part of the organic content of the juice product.

See Appendix C for an example calculation of organic juice, when the specific fruit/vegetable juice does not have a standard of identity and the single strength brix is not listed at 21 CFR §101.30(h)(1).

3.3.4 Carbonated Beverages

Carbonated beverages should be calculated based on the weight of ingredients, not their volume. Carbon dioxide (CO₂) is an ingredient in the product and not a processing aid. In many cases, the weight of CO₂ will be negligible in the formulation. However, in products where very few organic ingredients are used, it may be necessary for the certifier to verify the weight of CO₂ added at formulation to confirm that the product meets organic labeling claims.

3.3.5 Chicken stock, soy beverages, almond beverages, rice beverages, ready to drink teas/coffees, and similar products containing added water

For ingredients and products where there is no FDA standard of identity, the organic percentage should be calculated using the weight of the organic soluble solid content in the product. For example: A certified operator is making organic soup with soy instead of cream and purchases organic soy beverage in the form of a soy base and uses this as the foundation of the soup. Soy beverages do not have a standard of identity; therefore the certified operator must calculate the organic percentage of the soy beverage /soy base using the weight or percentage of the soy solids. A specification sheet, Certificate of Analysis, or similar document from the soy base supplier may provide this information.

See Appendix D for an example calculation of organic soy beverage and for an example calculation of organic chicken noodle soup that uses organic chicken broth.

It may not be possible to determine a solid content for products such as ready to drink coffees, teas, hydrosols and therefore these ingredients may offer no measurable organic content in a multi-ingredient finished organic product, even though as single ingredient products, they may be able to make a 100% organic claim. In this case, the ingredient itself may not contribute to the organic content of a multi-ingredient finished product.



3.4: Excluding salt from the organic calculation

Salt (sodium chloride) is excluded from the organic calculation of the finished product. Any other types of salt, such as potassium chloride or additives to the salt, such as anti-caking agents, need to be listed on the National List at 205.605 or 205.606.

The presence of an anti-caking agent (which is on the National List) in salt does not impact the organic content of a product. Salt is an excluded ingredient. Anticaking agents are ancillary substances in the salt and allow the salt to distribute evenly in the product. The quantity of anticaking agents added to salt is minor (approximately 0.1%) and the quantity of salt added to most products is also minor; therefore, the additive is unlikely to affect organic content. Salt is excluded from the final organic percentage calculation. Any minor amounts of anti-caking agents in the salt are also excluded if they will not result in a final certified “organic” product that contains less than 95% total certified organic ingredients or a certified “made with organic (specified ingredients or food groups)” product that contains less than 70% total certified organic ingredients.

4. References

Organic Foods Productions Act of 1990, as amended

7 U.S.C. §6510. Handling

USDA Organic Regulations (7 CFR Part 205)

7 CFR § 205.2 Terms Defined

Principal display panel. That part of a label that is most likely to be displayed, presented, shown, or examined under customary conditions of display for sale.

7 CFR § 205.302 Calculating the percentage of organically produced ingredients.

NOSB Recommendations

Compliance, Accreditation, and Certification Committee, NOSB Recommendation, “Calculating Percentage Organic in Multi-Ingredient Products,” April 2013

Other Laws and Regulations

Federal Food, Drug, and Cosmetic Act

21 U.S.C. § 321(r) – Definitions; generally

Food and Drug Administration Regulations

21 CFR §101.30 - Percentage juice declaration for foods purporting to be beverages that contain fruit or vegetable juice



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U.S. Food and Drug Administration

Guidance for Industry: A Food Labeling Guide (6. Ingredient Lists)

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- if the organic ingredient is a single ingredient product⁵ (e.g., organic onions with no other non-organic additives), the percentage of organic content would be 100%.
 - if the organic ingredient is a multi-ingredient product (e.g., organic egg powder containing 1% silicon dioxide), the percentage of organic content would be 99%⁶.
4. **Column 4:** Lists the percentage of non-organic ingredients in the formula. Although this column is not required to be completed since the goal is to determine organic content in the product.
 5. **Column 5:** Lists the percentage of ingredients in the formula that are certified “organic” or “made with organic***”.
 6. **Column 6:** Calculates the actual organic percentage⁷ of each organic ingredient, and the total organic content⁸ in the product.

To illustrate: The egg powder used as an ingredient in the formula above contains 1% silicon dioxide as an anti-caking agent and 0.5% salt. The total weight of egg powder being added to the product is 50 lbs.

- First exclude the salt, which would leave the total weight of the egg powder (minus salt) at 49.75 lbs.
- At 1% silicon dioxide for 50 lbs. of egg powder, the silicon dioxide weight was 0.5 lbs. Once the salt is removed, the percentage of silicon dioxide in the product increases slightly to 1.005%, which is not significant in this case.
- The silicon dioxide makes up .49 lbs. in the product. Therefore the total **organic ingredients** that the egg powder is contributing to the product are 49.26 lbs.
- In Column 2, you would enter 49.75 (egg powder minus salt).
- In Column 3 you would enter 99% because 99% of the egg powder is composed of organic ingredients and 1% is composed of silicon dioxide.
- Column 5 shows the percentage that the egg powder (which **includes** the silicon dioxide) contributes to the product (i.e., 36.81%).
- Column 6 shows the **actual** organic percentage that the egg powder contributes to the product (i.e., $36.81 \text{ (total ingredient minus salt)} \times 0.99 \text{ (organic content of ingredient, which is 99\%)} = 36.44\%$ (actual organic percentage that the egg powder is contributing to the product).

⁵ Note that some single-ingredient ingredients do not contribute 100% organic content. Further information may be required from the ingredient supplier.

⁶ Handlers should provide certifiers with supporting documentation (e.g., written confirmation from the certified supplier of the multi-ingredient ingredient) that substantiates the organic content claim for ingredients. Otherwise, the certified multi-ingredient ingredient should be calculated at exactly 95% or 70% organic content depending on the eligible organic claim.

⁷ In order to get the actual organic ingredient percentage, start with the number in column 3 and divide it by 100. Then multiply that number by the number in column 5. Example, column 3 (95%) / 100 = 0.95 x column 5 (50) = column 6 (47.5).

⁸ Round the percentage down to the nearest whole number.



To illustrate: For the Organic Apple Juice Concentrate at 70 °Brix in the calculation spreadsheet above:

- The °brix of organic apple juice concentrate used by organic handler is 70 °brix.
- The °brix of original juice before concentration is 11.5 °brix, as stated on the FDA table.
- Add the amount of water to bring the apple juice concentrate to single strength (ex: to 11.5 ° brix). This water can be counted towards the organic ingredient percentage. Refer to the spreadsheet above for the example: 800 lbs. of apple juice concentrate + 5,488 lbs. water = 6,288 lbs. of single strength apple juice with 11.5 ° brix.
- Provide product specification sheet or certificate of analysis for organic apple juice concentrate that confirms brix of concentrate and/or the reconstitution levels to bring juice to single strength (ex: 11.5 ° brix).
- Provide evidence that water added during the product formulation to reconstitute the juice is in line with FDA table at 21 CFR 101.30(h)(1).



reconstituted juices. See example below using organic acai concentrate.

2. In **Column 2**:

- List the weight of the water that is added to reconstitute the organic juice concentrates. This water is counted as an organic ingredient.

To illustrate: For Organic Acai Juice Concentrate at 30 °Brix in the calculation sheet

- The °brix of acai concentrate used by the organic handler is 30 °brix.
- The °brix before concentration is 3, according to supplier's product specification.
- Add amount of water to bring the acai concentrate to single strength (ex: 3 ° brix). This water can be counted towards the organic ingredient percentage. Refer to the spreadsheet above for the example: 950 lbs. of acai juice concentrate + 8,550 lbs. water = 9,600 lbs. of single strength acai juice with 3 ° brix.
- Provide a product specification sheet or certificate of analysis for organic acai concentrate that confirms brix or soluble solids content of the concentrate and of the single strength juice, or the reconstitution rate to bring the concentrate to single strength.
- Provide evidence that water added during the product formulation to reconstitute the juice is in line with information from the supplier.



Example spreadsheet #2: Organic Chicken Noodle Soup

Product Name: Organic Chicken Noodle Soup

Column 1: Ingredient	Column 2: Weight of ingredient in formulation (exclude added water/salt from each ingredient)	Column 3: % organic content ingredient (exclude added water/salt from each ingredient)	Column 4 / Column 5: % in formulation	Column 6: actual organic % of that ingredient/product
organic chicken broth (1% solids)	9	95.00%	1.15%	1.0925%
organic onion	50	100.00%	6.64%	6.6400%
organic celery	50	100.00%	6.64%	6.6400%
organic carrots	100	100.00%	12.83%	12.8300%
organic chicken	200	100.00%	25.67%	25.6700%
organic egg noodles	150	100.00%	19.01%	19.0100%
organic dried basil	20	100.00%	2.56%	2.5600%
organic dried oregano	20	100.00%	2.56%	2.5600%
organic pepper	20	100.00%	2.56%	2.5600%
organic butter	125	100.00%	16.04%	16.0400%
yeast extract*	35		4.49	0.0000%
				0.0000%
891 lbs of water and salt from broth	779			0.0000%
			non-org 4.49%	organic 95.66%
				95.60%

List Processing Aids Used

Salt	5 lbs.
Water	8,901 lbs.
	none

*For the purpose of this example, the yeast is non-organic and verified by the certifier to be commercially unavailable in organic form.

Instructions:

Follow instructions in Appendix A, except:

1. In **Column 1**:

- For products containing ingredients like organic soy base or organic chicken broth, indicate the weight of soluble solids in the ingredient.
- To work out the water content that needs to be removed from the ingredients:
 - Obtain calculations from the supplier of the ingredients that verify the soluble solids percentage.
 - Multiply the total lbs. of the ingredient (in this case, soy base or chicken broth) used in the formula by the percent solids in these ingredients to work out the total organic content that can be counted towards the organic ingredient percentage. See examples below.

2. In **Column 2**:

- For products that are made with organic ingredients that contain added water, such as soy base, coffee/tea, or meat stocks or broths, make sure to **exclude** added water from those ingredients. The organic percentage shall be calculated using the weight of the soluble solids of those ingredients.



Example #1 Soy Beverage:

- A certified handler is making organic soy beverage.
- She purchases organic soy base as an ingredient and uses this as the base of the soy beverage.
 - Soy base and soy beverages do not have a FDA standard of identity. Therefore, the certified handler must calculate the organic percentage of the soy base using the weight or percentage of the soy solids in the soy base and remove any added water from the calculations.
 - A specification sheet, certificate of analysis, or similar document from the soy slurry supplier would provide this information.
- In this example, the total weight of soy base being added to the formula is 10,000 lbs. However, because the soy base contains 11% total solids, the certified handler can only count 1,100 lbs. of soy base toward the final organic percentage (i.e., $10,000 \text{ lbs.} \times 0.11 (11\%) = 1,100 \text{ total organic soy solids}$). The remaining 8,900 lbs. is water and must be removed from the calculation.

Example #2 Chicken Noodle Soup:

- A certified handler is making Organic Chicken Noodle Soup.
- He purchases organic chicken broth as an ingredient.
 - Chicken broth does not have a FDA standard of identity. Therefore, the certified handler must calculate the organic percentage of the chicken broth using the weight or percentage of the soluble solids in the chicken broth and remove any added water and salt from the calculations.
 - A specification sheet, certificate of analysis, or similar document from the chicken broth supplier would provide this information.
- In this example, the total weight of chicken broth being added to the formula is 900 lbs., however because the chicken broth contains 1% total solids, the certified handler can only count 9 lbs of broth toward the final organic percentage (i.e., $900 \text{ lbs.} \times 0.01 = 9 \text{ lbs. total organic chicken broth solids}$). The remaining 891 lbs. is water and salt and must be removed from the calculation.