



FORMULATION CERTIFICATION

Purpose

This instruction defines policies and procedures associated with product formulation certification.

Policy

The USDA Grader must verify and document the formulation on a minimum of one complete batch each shift or more frequently if requested by their supervisor. Graders must also check-weigh several ingredients to verify proper formulation on an hourly basis during their normal sampling checks.

During formula certification, brine solutions are considered as components of formulations and therefore must be monitored during mixing according to the sampling frequency.

Water Meters

If metering devices are used to dispense water or other liquid ingredients, the meter must be tested quarterly for accuracy. To certify a water meter, first the grader must ensure the scale used for certifying the meter has been properly certified according to [QAD 602 Scale Certification](#). The container that will be used to collect water must then be weighed on the certified scale to determine the tare weight. Alternatively, the scale can be zeroed while the container is placed on the scale. The grader will oversee a plant employee meter and collect a minimum of 10 gallons of water into the container which will then be weighed on the certified scale. The net weight of the water will be compared to the meter's gauge to determine accuracy. The metering device must be within 0.5% of the amount shown on the scale in order to be utilized for metering water for formulation. Use 8.343 pounds of water per gallon for any unit conversions of pounds to gallons. The Supervisor may request additional testing of metering devices when warranted.

Plants using other approved means of measuring water (e.g. permanent markings on pipes or marination tanks) must still verify the accuracy of markings on a quarterly basis. The verification method in these instances should be detailed in the plant's approved Further Processing Certification Program (FPCP) or other procedures. Regardless of the method used, plants using water measuring devices must maintain a log documenting quarterly verification.

Procedures

The company must identify each container, tank, etc., of ingredients when it is batched (pre-



staged) prior to mixing. The weight of the overall ingredients used in the formulation as stated in the approved specification must not vary more than 0.5 percent from the required weight designated in the formula. The marked weight (applied by the processor) of pre-packaged ingredients must not be substituted for check-weighing procedures. During formulation, any check showing ingredients that do not comply with the amounts specified in the formulation section of the specification will cause retention of that batch. Additionally, production records should be reviewed to determine compliance with batches produced since the last formulation check. If any evidence of incorrect formulation is discovered, retain all product produced since the last acceptable sample.

When non-meat ingredients are received from an ingredient supplier in pre-weighed packages and added directly into the blender/mixer, the marked weight of the packages must be verified biweekly. If the marked weight is incorrect by ± 0.5 percent, the ingredient must be adjusted to ensure proper formulation. When two consecutive checks reveal incorrect pre-weighed ingredients from the same ingredient supplier, the processor must weigh that ingredient from that particular vendor prior to formulation. Plants are required to either maintain a log (paper or electronic) showing the amount of meat and ingredients used at time of formulation. Graders are to document on their daily worksheet when verifying formulation.

1. To determine the percentage of the total batch represented by each ingredient, divide the weight of the ingredient by the total weight of the batch, and multiply by 100.

$$\frac{\text{Individual ingredient weight}}{\text{Total batch weight}} \times 100 = \text{percent of individual ingredient}$$

2. Determine the amount of an individual ingredient permitted (or required) in a specific size batch by multiplying the percentage of the ingredient permitted in the batch by the weight of the batch divided by 100.

$$\frac{\text{Specified percentage} \times \text{batch weight}}{100} = \text{pounds of ingredient}$$

Example: The specified percentage of white trim meat is 7.0 percent. Total batch weight is 1,500 pounds.

$$\frac{7.0 \times 1,500 \text{ pounds}}{100} = 105 \text{ pounds white trim meat in batch}$$

3. When the specified amount of an ingredient is expressed in parts per million (ppm), determine the amount of that ingredient in pounds required for a batch by multiplying the specified ppm by the batch weight in pounds and dividing by 1,000,000.

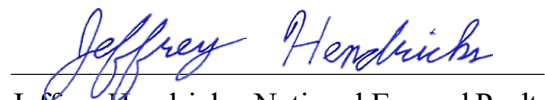


$$\frac{\text{ppm} \times \text{weight of batch}}{1,000,000} = \text{pounds of ingredients in batch}$$

Example: The specified concentration of an ingredient is 156 ppm and the total batch weight is 1,400 pounds.

$$\frac{156 \times 1,400 \text{ pounds}}{1,000,000} = 0.218 \text{ pounds or } 0.21 \text{ (See Note)}$$

Note: When a restricted ingredient is used or a maximum amount is specified for a particular ingredient, round to the next lower number based on the last place value as shown above. Formulations that do not meet specification requirements cannot be used unless an appropriate official waives the specified percentages. This will also necessitate additional verification checks by the grader beyond the established minimums.


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