CERTIFICATION OF BREADING PERCENTAGE

Purpose

This instruction provides guidelines for certification of products for percent breading.

Policy

FSIS regulations (Directive 7620.3) require that products labeled as "breaded" contain no more than 30% batter and breading. Products labeled as "fritters" may contain up to 65% batter and breading on the finished product. It is the QAD policy to ensure that processors comply with applicable specifications for breaded products.

Procedures

Determine percentage of breading present on a raw, non-breaded to raw-breaded basis. When product is subjected to multiple batter/breading and cooking processes, alternate methods of determining percentage of batter/breading present may be applicable after review and approval by the Supervisor.

The USDA grader shall determine the percentage of batter and breading and defects specified by recipient. This information shall be located in the contract or on the End Product Data Schedule (EPDS) for further processed USDA Donated commodity products. If no breading percentage is indicated, the grader shall certify that product does not exceed FSIS requirements, as stated in the Policy section of this Instruction.

I. Percent Breading

Examinations shall be conducted on an hourly basis, unless otherwise specified. Product shall be randomly selected from across the belt. Upon completion of the examination, product may be incorporated into unformed product, returned to the production line or handled according to plant specific procedures.

The following formula shall be used to determine the breading percentage of red meat products.

$$\frac{\text{Breaded weight} - \text{Unbreaded weight}}{\text{Breaded weight}} \times 100 = \%\ \text{Breading}$$

Unless otherwise directed, check the percentage of batter/breading on a sampling period basis or more frequently if conditions warrant. Determine percentage of breading present on a raw-unbreaded to raw-breaded basis for patties, nuggets, and similar manufactured breaded products. When product is subjected to multiple batter/breading and cooking processes, alternate methods of determining percentage of batter/breading present may be applicable after review and approval by the Federal-State supervisor.

Uniform Size

1. For patties and nugget-type products, check 5 servings hourly. Select the 5 unbreaded servings immediately after the forming machine. Weigh all 5 servings together. After the batter and breading has been added, select 5 breaded servings from the same area of production as the unbreaded product was selected.

2. For cut-up chicken parts, check 5 random parts. For example, if thighs and drumsticks are batter/breaded, the sample shall consist of five thighs and five drumsticks. If 8 or 9-piece cut-up chicken is processed, select parts equivalent to one whole chicken. Select and weigh the applicable parts before batter/breading and then replace them on the production line. After batter/breading, the *same parts* shall be re-weighed and the percentage calculated as shown below.

Non-Uniform Size

1. Determine weight of 5 servings of unbreaded product.

2. Return the 5 servings of unbreaded product to production line.

3. Allow the 5 servings to pickup batter and breading

4. Collect the **original 5** servings of breaded product.

5. Determine the weight of breaded product

6. Determine Percent Breading

Graders shall maintain sufficient separation of the sample from other product during batter/breading to maintain positive identity of the sample pieces. Graders must also assure that adjustments, which could influence test results, are not made during the breading test. When graders cannot maintain product identity nor have complete assurance that batter and breading flow rates and coating procedures remain constant during testing, they must contact the Federal-State supervisor who will provide alternate testing procedures.

Upon written request from the processor to the resident grader, one of the alternative methods listed below may be used to determine the amount of batter/breading present. When the processor elects to use Method B- Shift Average, the End Product Data Schedule (EPDS) shall be marked with the percentage of batter/breading followed by “AVG”.

When the processor elects to use Method C- Child Nutrition, the recipient agency or processor must modify the End Product Data Schedule to require verification according to CN Labeling Program Procedures. In this case, the specific CN Quality Control procedures and permitted tolerances must be attached to the EPDS. The USDA grader will verify compliance with CN labeling through the processor’s documented CN Quality Control procedures with one exception:

piece counts for each finished case will be monitored as "minimum piece counts." Piece counts will only be verified if stated on the label.

When processors elect to use Method B- Shift Average or Method C- Child Nutrition, waivers for product that does not comply with the requirements are not allowed. If a processor utilizes more than one method for their products, the request shall include the product, identification code, and applicable method.
For example:

Batter Breaded Patties, product code CN 12345 – CN Method
Batter Breaded Nuggets, product code 23456 – Shift Average Method
Batter Breaded Parts, product code 34567 - AQL Maximum Average

FSIS labeling regulations require that product labeled as "breaded" may contain up to 30% breading.

Product that exceeds 30% breading must be labeled as a "fritter." When product represented by an AQL exceeds 30% breading, plant management is to be notified of the findings. The product the sample represents will be rejected back to the last acceptable sample with the affected product turned over to FSIS for disposition. Note: Processors may have approved CN Quality Control procedures in place to handle product that exceeds 30% batter/breading. For example, individual sampling periods may exceed 30% batter/breading up to 3% provided the shift average does not exceed 30%.

A. AQL Maximum- Method A

To determine the percentage of batter/breading present, divide the unbreaded weight by the breaded weight and multiply the result by 100. Subtract this figure from 100 percent to determine the percent of batter/breading on the product. Product exceeding the amount listed on the specification or EPDS will be rejected back to the last acceptable sample.

$$\text{Percent breading} = 100\% - \left(\frac{\text{unbreaded weight}}{\text{breaded weight}} \times 100 \right)$$

Example: The breaded weight of chicken parts is 5.20 pounds and the unbreaded weight is 4.60 pounds.

$$100\% - \left(\frac{4.60}{5.20} \times 100 \right) = 11.54\% \text{ batter/breading}$$

Alternatively, the percentage of breading present may be determined by subtracting the unbreaded weight from the breaded weight (prior to frying). Divide this figure by the breaded weight and multiply by 100 to determine the percentage of breading present.

$$\text{Percent breading} = \left(\frac{\text{breaded weight - unbreaded weight}}{\text{breaded weight}}\right) \times 100$$

Example: The breaded weight of the chicken parts is 5.20 pounds and the unbreaded weight is 4.60 pounds.

$$\left(\frac{\text{5.2 pounds - 4.6 pounds}}{\text{5.2 pounds}}\right) \times 100 = 11.54\% \text{ batter/breading}$$

B. Shift Average- Method B

Under this method, a tolerance of +/- 3% of the target batter/breading percentage is allowed for individual AQL samples, provided the shift average for batter/breading present does not exceed the target percentage listed on the EPDS or specification. Product represented by individual AQL samples not meeting the +/- 3% tolerance is not eligible for certification and is rejected for use immediately. The AQL results for any rejected sampling period will not be used in the calculation for the shift average.

To minimize the amount of product that would be subject to retention for being out of compliance, it is permissible for the processor to remove AQL sampling periods that caused the shift average to not comply with the requirements. Product removed to achieve shift average compliance is not eligible for certification.

Graders are to identify sampling periods or shift averages that require retention by circling the appropriate sample number or average with a contrasting marker on their worksheet.

For example: the EPDS shows 25% AVG as the target for batter/breading in column 6.

Example 1

AQL #	1	2	3	4	5	6	7	8	Average
Raw wt.	6.10	6.50	6.35	6.75	6.82	6.25	6.22	6.31	
Breaded wt.	7.86	8.44	8.32	8.99	9.21	8.54	8.62	8.42	
Percent	22.39	22.99	23.68	24.92	25.95	26.81	27.84	25.06	25.00

Product in Example 1 is acceptable. Individual AQL's do not exceed the +/-3% tolerance of 25% (22-28%). The shift average of 25% was met even though AQL's 5-8 exceeded the target of 25%.

Example 2

AQL #	1	2	3	4	5	6	7	8	9	Average
Raw wt.	6.10	6.50	6.35	6.75	6.82	6.25	6.22	6.31	6.78	
Breaded wt.	7.93	8.46	8.66	9.00	9.20	8.13	7.95	8.64	9.02	
Percent	23.08	23.17	26.67	25.00	25.87	23.12	21.76	26.97	24.83	24.88

Product in Example 2 is acceptable. The shift average of 25% was not exceeded even though AQL's 3, 5 and 8 were above the target of 25%. The results of AQL #7 are not used to determine shift average as it was rejected during production for not complying with the +/-3% tolerance. The remaining AQL's do not exceed the +/-3% tolerance of 25% (22-28%).

Example 3

AQL #	1	2	3	4	5	6	7	8	Average
Raw wt.	6.10	6.50	6.35	6.75	6.82	6.25	6.22	6.31	
Breaded wt.	7.85	8.46	8.80	9.00	9.20	8.13	8.52	8.64	
Percent	22.29	23.17	27.84	25.00	25.87	23.12	27.00	26.97	25.22

Product in Example 3 exceeds the 25% shift average requirement. The processor may request removal of selected AQL sampling periods to achieve compliance. In this case, removing the final AQL would result in a raw weight of 44.99, breaded weight of 59.96 and an average percentage of 24.97%. Product from sampling periods 1-7 would be accepted. AQL sampling period 8 is rejected and not eligible for certification.

Example 4

AQL #	1	2	3	4	5	6	7	8	9	Average
Raw wt.	6.10	6.50	6.35	6.75	6.82	6.25	6.22	6.31	6.32	
Breaded wt.	7.93	8.46	8.66	9.00	9.20	7.93	8.52	8.64	8.6	
Percent	23.08	23.17	26.67	25.00	25.87	21.19	27.00	26.97	26.51	25.54

Product in Example 4 exceeds the 25% shift average requirement. The results of AQL #6 are not used to determine shift average as it was rejected during production for not complying with the +/-3% tolerance. The processor may request removal of selected AQL sampling periods to achieve compliance. In this case, removing AQL sampling periods 3, 7 & 8 would result in an average percentage of 24.73%. The rejected product is not eligible for certification.

C. Child Nutrition (CN) - Method C

Under this method, procedures for determining compliance with CN labeling will be used. When determining compliance with CN labeling, specific areas of production are required to be monitored. These are:

Formulation
Raw Weight
Batter/Breading
Cooked Weight
Piece Count/Servings per Case

By monitoring each of these specific areas, compliance with CN labeling requirements is determined. Through monitoring the above areas, we are also able to accomplish our responsibilities for assuring non-substitution and non-diversion under the State reprocessing program and Standard Yield Program.

(1) Formulation

Product formulation will be monitored as outlined in QAD Section 604 Formulation Certification. Weights of the ingredients used in the formula shall vary no more than 0.5 percent from the required weight designated in the formula.

For example: If the formulation calls for 40 pounds of seasoning, the allowable minimum for that formula is 39.8 pounds, and the maximum is 40.2 pounds.

Whenever a batch of product does not comply with the stated formulation, the batch must be re-formulated. If it cannot be re-formulated to comply, the batch is rejected for use.

(2) Raw Weight

The raw weight is checked on all portions and/or components whether the finished product is raw or cooked. A sample of 5 servings shall be taken at the beginning of production and at least every 60 minutes thereafter. Serving size may be found on the label or EPDS. If a serving consists of multiple pieces, the sample size will reflect that amount. For example: 5 nuggets make up 1 serving. The sample size will be 25 nuggets.

The average weight of each serving in the sample must weigh no less than 10 percent below the specified weight of the serving. When the average weight of a serving falls below the limit, product represented by the AQL period shall be retained back to the last acceptable sample.

The average of all samples taken during the production shift must meet or exceed the serving weight specified on the label or EPDS. When the shift average of all samples fails to meet the minimum required weight, the entire shift's production shall be rejected.

(3) Batter/breading

In order to receive a bread/bread alternative credit and comply with CN label requirements, a specified amount of batter/breading must be present for each serving. Due to this requirement, the processor must establish a minimum amount of batter/breading that must be present. A range of 3% below the stated batter/breading percentage is allowed for individual AQL's, provided the shift average for batter/breading present meets or exceeds the target percentage listed on the EPDS or specification. An individual AQL that does not meet the 3% tolerance for batter/breading shall be retained back to the last acceptable sample.

The average of all samples taken during the production shift must meet or exceed the stated percentage of batter/breading on the EPDS or specification. Product that does not meet or exceed the stated percentage on the EPDS or specification shall be rejected.

(4) Cooked weight

A sample of 5 servings shall be taken at the beginning of production and at least every 60 minutes thereafter. Serving size may be found on the label or EPDS. If a serving consists of multiple pieces, the sample size will reflect that amount. For example: 5 nuggets make up a serving. The sample size will be 25 nuggets.

Cooked weights are checked and compared with the portion size stated on the EPDS or specification. The average weight of each serving in the sample must weigh no less than 10 percent below the specified weight of the serving. When the average weight of a serving falls below the limit, all production back to the last acceptable check shall be retained.

The average of all samples taken during the production shift must meet or exceed the serving weight specified on the EPDS or specification. When the shift average of all samples fails to meet the minimum required weight, the entire shift's production shall be rejected.

(5) Piece Count/Servings per Case

A minimum number of pieces/servings per case are required under this program. The processor may pack more pieces/servings per case than what is stated on the label, but it is not permissible to pack less than the stated number of pieces/servings.

To calculate the minimum number of pieces required per case, divide the net weight of the case by the net weight of the serving size. Serving size may be found on the label or EPDS. (If multiple pieces are required for a serving, a separate calculation is required.) The final result is the required number of pieces per case. For example:

Single Piece Serving	Multiple Piece Serving
Case Weight / serving size = required Number of Pieces per Case 30 / .25 pound = 120	5 Nuggets = 1 3-ounce serving 3 ounces = .19 pound 30 (case weight)/ .19= 158 servings per case 158 X 5(nuggets per serving) = 790 nuggets per case

Verification for compliance with this requirement will be on an AQL basis by sampling from boxes of finished product. First select and weigh the sample case of finished product. Next, weigh 10 units from the sample case and determine the average individual unit weight. The average unit weight is then converted to pound equivalents. Calculate the number of units per case by dividing the net case weight by the average unit weight. Any sample case with less than the required amount of servings per case will require retention of that portion of the product the sample represents.