

7140.2DetermAddedWater-CookdSausg91090

7140.1

OPI: RP/SLD

DETERMINING ADDED WATER IN COOKED SAUSAGE

I. PURPOSE

This directive provides information and instructions to FSIS inspectors in charge for calculating the amount of protein from Group 2 Protein-Contributing Ingredients present in cooked sausages. This information is then provided to FSIS laboratories to use to calculate the amount of added water in cooked sausages. The directive also describes information needed from and responsibilities of official establishments manufacturing cooked sausages.

II. CANCELLATIONS

MPI Manual, Sections 18.20(e)(3) and (4), 18.23(c), 23.4(a)(2) and (b)(2). Chemistry Laboratory Guidebook, Part 1.003

III. (RESERVED)

IV. REFERENCES

MPI Regulations, Sections 318.22, 319.140, and 319.180-182

FSIS Directive 10,140.1, Rev. 1, dated 1-11-88

FSIS Directive 10,600.1, dated 10-6-83

FSIS Directive 10,625.1, dated 2-26-86

FSIS Directive 10,630.1, Rev. 4, dated 4-10-90

MPI Manual, Sections 23.1 through 23.7

V. POLICY

A. On March 1, 1990, FSIS published a final rule titled "Determination of Added Water in Cooked Sausages" which amended the Federal meat inspection regulations by defining the kinds of proteins which will be credited as of livestock or poultry origin and those that will not be when calculating added water in cooked sausages. The final rule also set forth the method by which FSIS will calculate added water in cooked sausages. The effective date of the final rule is August 28, 1990.

B. The Federal meat inspection regulations limit the amount of added water which may be present in cooked sausages. Cooked sausages are those produced under 319.140, 319.180, 319.181 or 319.182. Added water in cooked sausages as defined in 9 CFR 318.22 is water in excess of 4 times the Group 1 protein in addition to 1 percent of Group 2 protein.

C. FSIS inspectors will need to provide certain information to FSIS laboratories so that the laboratories can calculate the added water of the cooked sausage. Detailed instructions for collecting and calculating this information are provided in Sections VI. and VII. and Attachments 1, 2 and 3.

D. Section 5 of the Federal Meat Inspection Act provides that

limitations may be placed on the entry of carcasses...and other materials under prescribed conditions to assure that the entry of such materials into official establishments will be consistent with the purposes of the Act. The inspector, as part of his/her routine duties, must be aware of the contents and/or composition of materials entering the establishment including those products and/or ingredients intended to be added to meat products. The establishment must provide information on the contents and/or composition of materials/mixtures intended to be added to meat products by supplying the inspector with the label of the mixture which reflects the contents/composition or laboratory results which reflect the contents/composition of the mixture.

E. The final rule discontinues the practice whereby proteins contributed by mustard, spices, cereals, autolyzed yeast and hydrolyzed milk protein were credited the same as protein from ingredients of livestock or poultry origin; these ingredients are now credited as protein from Group 2 Protein-Contributing Ingredients. The final rule will not credit ingredients of livestock or poultry origin processed by hydrolysis, extraction, concentrating or drying as protein from Group 1 Protein-Contributing Ingredients; these ingredients are now credited as protein from Group 2 Protein-Contributing Ingredients. Also, mustard will no longer be limited to 1 percent of the finished weight of cooked sausages.

VI. INFORMATION NEEDED BY OFFICIAL ESTABLISHMENTS AND INSPECTORS IN CHARGE

A. ESTABLISHMENT RESPONSIBILITIES

1. Official establishments provide the inspector in charge with the protein content of all Group 2 Protein-Contributing Ingredients used to prepare cooked sausages. Group 2 Protein-Contributing Ingredients are any ingredients of slaughtered livestock or poultry origin which have been processed by hydrolysis, extraction, concentrating or drying and any other protein-contributing ingredients, such as ingredients of dairy, plant, or yeast origin.

2. The establishment provides this information for each batch of cooked sausage it produces. The establishment may provide this information by (1) having all Group 2 Protein-Contributing Ingredients contained in mixtures intended to be added to the formulation analyzed in a laboratory for protein content and providing the results to the inspector in charge or (2) providing the inspector in charge with a copy of product labels of all Group 2 Protein-Contributing Ingredients which state the total percentage of protein from Group 2 Protein-Contributing Ingredients in each mixture.

B. INSPECTOR-IN-CHARGE RESPONSIBILITIES

The inspector in charge will calculate the percent of protein from Group 2 Protein-Contributing Ingredients in finished cooked sausages for each batch of cooked sausage prepared by the establishment. The calculation is based either on a formulation basis or yield basis.

VII. CALCULATING THE PERCENTAGE OF PROTEIN FROM GROUP 2
PROTEIN-CONTRIBUTING INGREDIENTS

A. Calculations based on formulation basis. Formulation basis means that the percent of protein from Group 2 Protein-Contributing Ingredients is determined based on the weights of the individual components of the finished cooked sausage, i.e., the weight of all Group 1 Ingredients, plus the solids weight of the other ingredients, plus the weight of permitted added water in the finished product.

1. Total the weight of all Group 1 Ingredients.
2. Total the weight of solids (dry or in solution) contributed by all other ingredients.
3. Add the total weights of steps 1. and 2.
4. Divide this total by 100 minus the percent of permitted added water. (The permitted amount of added water will depend on the type of product being produced. For example, if the establishment is producing sausage in accordance with 319.140, only 10 percent added water is permitted. Therefore, the inspector would subtract 10 from 100.)
5. Multiply this amount by 100 to determine maximum yield of cooked sausage.
6. Total the weight of all proteins contributed by the Group 2 Protein-Contributing Ingredients. This amount is determined from lab analysis or from declarations on mixture labels.
7. Divide the total in step 6. by the total in step 5.
8. Multiply this amount by 100. This result is the percentage of Group 2 protein in the cooked sausage.
9. The percentage calculated in step 8. should be entered on FSIS Form 10,600-1. Attachments 1 and 2 provide examples of how this calculation should be performed.

B. Calculations based on yield basis: Yield basis means that the percent of protein from Group 2 Protein-Contributing Ingredients is determined based on the total weight of the finished cooked sausage, not on a summation of individual product components, i.e. formulation basis.

1. Determine the total pounds (yield) of finished cooked sausage to be produced based on an average of the total pounds produced during the last five productions.
2. Determine the total amount of protein from Group 2 Protein-Contributing Ingredients used to manufacture the last production. This is determined by adding together the pounds of protein from Group 2 Protein-Contributing Ingredients that were added by various ingredients to the production.
3. Divide the result in step 2. by the result obtained in step 1.
4. Multiply this amount by 100. This amount is the percentage of protein from Group 2 Protein-Contributing Ingredients present in the finished cooked sausage.
5. The percentage calculated in step 4. should be entered on FSIS

Form 10,600-1. Attachment 3 provides an example of how this calculation should be performed.

VIII. PREPARATION AND SUBMISSION OF SAMPLES FOR LABORATORY ANALYSIS

The inspector in charge will follow the procedures outlined in the referenced FSIS Directives and the MPI Manual Sections regarding the preparation and submission of samples to FSIS laboratories.

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Administrator

Attachments

- 1 and 2--Examples of Calculation Based on Formulation Basis
- 3--Example of Calculation Based on Yield Basis

FSIS DIRECTIVE 7140.2
ATTACHMENT 1

EXAMPLE OF CALCULATION BASED ON FORMULATION BASIS
COOKED SAUSAGE

1. Total the weight of all Group 1 Ingredients per batch. --332 POUNDS
2. Total the weight of solids (dry or in solution) contributed by all other ingredients (e.g., salt, corn syrup solids, spices, autolyzed yeast solids, beef extract solids). --22 POUNDS
3. Add the total weights of steps 1 and 2. --354 POUNDS
4. Divide this total by 100 minus the percent of permitted added water. (The permitted amount of added water will depend on the type of product being produced. In this example, the establishment is producing sausage in accordance with section 319.140, therefore, only 10 percent added water is permitted. In this case, the inspector would subtract 10 from 100.) --100 minus 10=90, 354 divided by 90=3.9333
5. Multiply this amount by 100 to determine maximum yield of cooked sausage. --3.9333 x 100= 393.33 pounds
6. Total the weight of all proteins contributed --8.82

- by the Group 2 Protein-Contributing Ingredients (e.g., spices, autolyzed yeast, beef extract). This amount is determined from lab analysis or from declarations on mixture labels. pounds
7. Divide the total in step 6. by the total in by step 5. --8.82
divided by
393.33=
.02242
 8. Multiply this amount by 100. This result is the percentage of protein from Group 2 Protein-Contributing Ingredients in the cooked sausage. --.02242 X
100=2.24%
 9. The percentage calculated in step 8.--2.24%-- should be entered on FSIS Form 10,600-1.

FSIS DIRECTIVE 7140.2
ATTACHMENT 2

EXAMPLE OF CALCULATION BASED ON FORMULATION
BASIS--FRANKFURTER

1. Total the weight of all Group 1 Ingredients per batch. --332 POUNDS
2. Total the weight of solids (dry or in solution) contributed by all other ingredients (e.g., salt, corn syrup solids, spices, autolyzed yeast solids, nonfat dry milk). --22 POUNDS
3. Add the total weights of steps 1. and 2. --354 POUNDS
4. Divide this total by 100 minus the percent of permitted added water. (The permitted amount of added water will depend on the type of product being produced. In this ex., the establishment is producing sausage in accordance with 319.180--25% fat and 15% water --therefore, 15 percent added water is permitted. In this case, the inspector would subtract 15 from 100.) --100 minus
15=85, 354
divided by
85=4.1647
5. Multiply this amount by 100 to determine maximum yield of cooked sausage. --4.1647 X
100= 416.47
pounds
6. Total the weight of all proteins contributed by the Group 2 Protein-Contributing Ingredients --8.82
pounds

(e.g, spices, autolyzed yeast, beef extract). This amount is determined from lab analysis or from declarations on mixture labels.

7. Divide the total in step 6. by the total in step 5. --8.82
divided
by 416.17
=.02117
8. Multiply this amount by 100. This result is --.02117 X
the percentage of protein from Group 2 Protein 100=2.11%
Contributing Ingredients in the cooked sausage.
9. The percentage calculated in step 8. --2.11%--
should be entered on FSIS Form 10,600-1.

FSIS Directive 7140.2
ATTACHMENT 3

EXAMPLE OF CALCULATION BASED ON YIELD BASIS
COOKED SAUSAGE

1. Determine the total pounds per batch (yield) --410
of finished cooked sausage to be produced POUNDS
based on an average of the last five batches
2. Determine the total amount of protein from --8.82
Group 2 Protein-Contributing Ingredients used POUNDS
too manufacture the last production. This is
determined by adding together the pounds of
protein from Group 2 Protein-Contributing
Ingredients that were added by various ingred-
ients to the production.
3. Divide the result in step 2. by the result --8.8
obtained in step 1. divided
by 410=
.0215
4. Multiply this amount by 100. This amount is --.0215 X
the percentage of protein from Group 2 Protein 100=2.15
Contributing Ingredients present in the
finished cooked sausage.
5. The percentage calculated in step 4. --2.15%--
should be entered on FSIS Form 10,600-1.