



USDA-FSIS REGULATIONS REGARDING ADDED WATER

USDA-FSIS has adapted their existing meat and poultry labeling regulations for the Siluriformes inspection program. The requirements of the retained water regulation (at 9 CFR part 441) are specifically referenced in the final rule (at 9 CFR 541.7(e)). In addition, the final rule (at 9 CFR 541.7 (a)) cross references existing general labeling regulations as being applicable to Siluriforme fish and fish products; this would include the regulation for the labeling of products with added solutions (at 9 CFR 317.2(e)(2)).

Calculating percent added water

USDA uses a **“weight-in, weight-out” or yield method**. This method is used for the retained water regulation and the added solutions regulation. The formula is based on knowing the weight of the product prior to treatment and the weight of the product after treatment. It does not depend on knowing a baseline moisture or an end moisture.

$$X\% \text{ water added} = \text{weight of added solution}/\text{weight of product prior to treatment}^1.$$

As an example, if the weight of the product was 100 pounds prior to treatment and the weight of the added solution is 20 pounds, the % water added is:

$$\begin{aligned} X\% \text{ water added} &= 20\text{lb}/100\text{lb} \\ X\% \text{ water added} &= 20\% \end{aligned}$$

An alternative calculation is based on knowing the weight of the product prior to and after treatment as follows:

$$X\% \text{ water added} = (\text{weight of finished product} - \text{weight of product prior to treatment})/\text{weight of product prior to treatment}.^2$$

As an example, if the weight of the product was 100 pounds prior to treatment and the weight of the treated product is 120 pounds, the % water added is:

$$\begin{aligned} X\% \text{ water added} &= (120\text{lb}-100\text{lb})/100\text{lb} \\ X\% \text{ water added} &= 20\% \end{aligned}$$

¹ 9 CFR 317.2(e)(2)(i)

² FSIS Directive [7620.3](#) – Processing Inspectors’ Calculations Handbook

Regulation for Labeling Retained Water

The USDA regulation for **retained water** (9 CFR 441.10) requires firms to:

- 1) limit the amount of water pick-up in the raw product due to processing steps necessary for food safety purposes (such as washing or chilling),
- 2) indicate the amount of retained water on the label to inform the consumer, and
- 3) develop a protocol for gathering water retention data to support the label statement.

This regulation applies only to products that have no other added ingredients. The retained water is not considered an ingredient because it is incidental to the process and not purposely added. The statement, such as “up to X% retained water” would appear on the principal display panel of the label, but would not need to be part of the product name. An example is depicted to the right.



USDA has had regulations limiting water absorption and retention in poultry products since 1959. Because water is used to chill poultry carcasses and water will be retained during chilling, regulations established a maximum amount of water that could be retained based on the size of the bird. For example a 8.5 pound turkey could have up to a 8.0% average increase in weight while a 27 pound turkey could have up to a 4.3% increase in weight due to retained water. Originally there was no requirement to include the amount of retained water on the label unless the level exceeded the allowed amount. The agency felt that labeling wasn't necessary because maximum retained water levels were publically available to the consumer. These regulations were eliminated based on the 1997 *Kenney et. al. v. Glickman* court decision which found the regulations “arbitrary and capricious” because USDA did not explain how the water retention levels were established and why similar regulations prohibited absorbed water in meat. To continue to allow retained water in poultry products, as well as to allow in meat products, USDA finalized the current retained water in raw meat and poultry products regulations in 2001.³ This regulation places the onus on each facility to establish and control the maximum amount of retained water for their products.

Regulation for Labeling Percentage of Added Solutions

The USDA regulation for labeling meat and poultry products **containing added solutions** (9 CFR 317.2 and 381.117) requires these products include a descriptive statement adjacent to the product name. The regulations require that the product name and descriptive designation be printed in a single, easy-to-read and single-color type style on a contrasting single-color background and that the descriptive designation be in letters that cannot be smaller than one-third the size of the largest letter in the product name. In addition to the prescriptive requirements for type size and style, the regulations also dictate that the descriptive designation include all the

³ 66 Fed. Reg. 1750, January 9, 2001.

individual or multi-ingredient components of the solution to be listed in descending order of predominance by weight along with the percentage (stated as a numeral) of the solution added to the product. An example of the labeling requirement is shown to the right.

USDA describes the rationale for the regulations is to provide the consumer with adequate information, presented in a clear and conspicuous manner, to distinguish between a single-ingredient product and a similar appearing product that has added solution. Compliance with the regulation will be through labeling record verification checks and post-market surveillance activities.



USDA labeling requirements for poultry products with added solutions date back to 1972. Originally regulations limited added solutions to a 3% increase in weight, but improved technologies facilitated the addition of higher amounts of added solutions. Subsequent agency policy statements outlined labeling conventions for non-misleading label statements. Several citizen petitions prompted USDA to create a stronger link between the product name and the level of added solutions to create a non-misleading label statement and to eliminate confusion between single-ingredient products and similar products that contain additional ingredients and solutions. USDA finalized the revised labeling requirements for products containing added solutions in 2014, effective January 2016.⁴

To summarize the USDA requirements, the agency makes a distinction between water added incidentally due to processing and water added purposefully to change the nature of the product. Water added incidentally during processing applies to single ingredient products and water added purposefully are multi-ingredient products (with water being one of the ingredients).

Practical insight from the poultry industry on complying with the two USDA labeling regulations

The percent added solutions is determined based on formulation. As an example 90 pounds of chicken blended with 10 pounds of solution (i.e., 90% chicken and 10% solution); using the formula: $X\% \text{ solution added} = (\text{weight of added solution} / \text{weight of product prior to treatment})$, the percent added solution would be 11%. Records documenting production as well as the formulation supporting the label statement are maintained.

The percent retained water is specific to every processing establishment and every product. Extensive data collection would be necessary to determine the maximum retained water to include on the label. The maximum retained water determination allows for product-to-product variations. Values are established so that with 95% statistical confidence any package retains no more water than is unavoidable and no more than stated on the label. The establishment

⁴ 79 Fed. Reg. 79043, December 31, 2014

monitors the water pick-up on an hourly basis by weighing a sample of product before being exposed to water and after completion of the process to calculate the amount of retained water to ensure compliance. An analogous process could be established with seafood processors by studying each step in the process where the product is exposed to ice/water to determine the amount of water pick-up.

References

Retained Water Regulation

- Retained Water in Raw Meat and Poultry Products; Poultry Chilling Requirements January 9, 2001 Final Rule Federal Register notice [PDF](#) | [Text](#)
- [USDA Compliance Guidelines for Retained Water Regulation](#)
- [USDA-FSIS Directive 6700.1](#) Retained Water in Raw Meat and Poultry Products

Added Solutions Regulation

- Descriptive Designation for Raw Meat and Poultry Products Containing Added Solutions December 31, 2014 Final Rule Federal Register notice [PDF](#) | [Text](#)
- [FSIS Notice 28-16](#) Descriptive Designation for Raw Meat and Poultry Products with Added Solutions, as Required by 9 CFR 317.2(E)(2) and 9 CFR 381.117(H)
- [Questions and Answers on Descriptive Designation for Raw Meat and Poultry Products with Added Solutions](#)
- *Slides:* [Descriptive Designations for Mechanically Tenderized Beef and Added Solutions](#) | [PDF](#)