

TO: All Holders of the Fish Products Inspection Manual

SUBJECT: DETERMINATION OF PERCENT FISH IN BREADED AND BATTERED FISH

N.B. This Bulletin supersedes and replaces Bulletin no. 38

The purpose of this bulletin is to inform manual holders of the procedures to be used in the determination of percent fish flesh in breaded and battered fish.

Effective immediately, the attached method, no. 996.15 - Fish Flesh Content (FFC) in Frozen Coated Fish Products, from the "Official Methods of Analysis" of the Association of Official Analytical Chemists (AOAC), will be the accepted method for the Canadian Food Inspection Agency for determining fish flesh in breaded or battered fish.

To account for the inherent variability of the method the following adjustment factors will be applied:

- 2% for raw breaded product and batter-dipped product;
- 4% for pre-cooked products.

A sample unit is defined as one of a number of individual containers, or a portion of a fish or a primary container examined or evaluated as a single unit.

Note: The attached methodology and associated tolerances will be applied when final product sampling for determination of percent fish is utilised.

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35.1.03

**AOAC Official Method 996.15
Fish Flesh Content (FFC)
In Frozen Coated Fish Products
First Action 1996**

(Applicable to the determination of the FFC in frozen coated fish products.)

(*Caution:* Use protective gloves when immersing and holding test sample in water bath set at >43°C.)

A. Principle

Method uses (1) combination of heat and H₂O to breakdown adhesive properties of coating (batter and/or breading) and (2) hands to assist in determining when coating's ability to adhere to flesh's frozen surfaces is diminished and can be easily removed.

B. Apparatus

- (a) *Waterbaths*.--- Primary (17- 49°C) and secondary(17-30°C).
- (b) *Thermometers*.--- Two; immersion type, capable of accurately measuring to ± 1°C.
- (c) *Thermometer holders*. --- Two; with clips.
- (d) *Balance*. --- Capable of accurately weighing to 0.1 g.
- (e) *Stop watch*. --- Capable of reading seconds.
- (f) *Paper towel*.
- (g) *Spatula* --- 4 in. (ca 10 cm) blade with rounded tip.
- (h) *Nut pick*.

C. Preparation of Test Sample

Maintain integrity of frozen test sample by storing in freezer until ready to remove batter and/or breading. Take into account all applied coating when weighing coated test samples.

D. Determination

Set primary H₂O bath temperature between 17- 49°C. Set secondary H₂O bath temperature between 17- 30°C.

Weigh and record weight of each test sample while it is hard frozen. Using hands, immerse and hold test sample in primary H₂O bath until batter and/or breading becomes soft and can be removed easily from still-frozen flesh.

Remove test sample from H₂O bath and blot lightly with enough paper towel to absorb excess H₂O. Complete blotting in ≤ 7 s. Scrape and remove batter and/or breading from flesh with spatula. If batter and/or breading is difficult to remove, using hands, redip and hold partially debattered or debreaded test sample in secondary H₂O bath until batter and/or breading becomes soft and can be removed easily from still-frozen flesh.

Remove test sample from H₂O bath and blot lightly with enough paper towel to absorb excess H₂O. Complete blotting in ≤ 7 s. Scrape and remove batter and/or breading from flesh with spatula. When necessary, repeat redipping procedure and use nut pick to remove batter and/or breading from any voids (holes, spaces, or depressions) until all batter and/or breading has been removed from still-frozen flesh. Reweigh and record weight of debattered and/or debreaded test sample.

(*Note:* Several preliminary trials may be necessary to determine optimum H₂O bath temperatures, dip times, and number of dips required for debattering and/or debreading test samples. The correct dip time is the minimum time of immersion in H₂O baths required before batter and/or breading on test sample can be

scraped off easily, provided that debattered or debreaded test sample is still solidly frozen.)

As a guide, no more than 1 initial dip (17- 49°C) and 2 redips (17-30°C) for a maximum of 2.5, 0.5, and 0.5 min, respectively, should be necessary.

E. Calculations

Calculate content of fish flesh, %, in test sample as follows:

$$\% \text{ Flesh} = (W_d / W_b) \times 100$$

where W_d = weight of debattered and/or debreaded test sample; W_b = weight of battered and/or breaded test sample.

Reference: J. AOAC *Int.* **80**, 1235(1997).

Revised: March 1998