United States Standards for Grades of Frozen Fried Fish Sticks

Description of the product

Frozen fried fish sticks are clean wholesome, rectangular-shaped unglazed masses of cohering pieces (not ground) of fish flesh coated with breading and partially cooked. The sticks are cut from frozen fish blocks; are coated with a suitable, wholesome batter and breading; are fried, packaged, and frozen in accordance with good manufacturing practices. They are maintained at temperatures necessary for preservation of the product. Frozen fried fish sticks weigh up to and including 1½ ounces; are at least three-eighths of an inch thick; and their largest dimension is at least three times the next largest dimension. All sticks in an individual package are prepared from the flesh of one species of fish.

Composition of the product

(a) Frozen fried fish sticks shall contain 60 percent by weight of fish flesh determined by the official end-product method as set forth in Definitions(f). Fish flesh content may be determined by the on-line method as set forth in Definitions(g): *Provided*, That the results are consistent with the fish flesh content requirement of 60 percent by weight, when verified by the official end-product method.

(b) Production methods employed in official establishments shall be kept relatively constant for each production lot so as to minimize variation in any factors which may affect the relative fish flesh content.

Grades

(a) "U.S. Grade A" is the quality of frozen fried fish sticks that:

(1) Possess good flavor and odor and;
(2) rate a total score of not less than 85 points for those factors of quality that are rated in accordance with the scoring system outlined elsewhere in this part.

(b) "U.S. Grade B" is the quality of frozen fried fish sticks that:
(1) Possess at least reasonably good flavor and odor and;
(2) rate a total score of not less than 70 points for those factors of quality that are rated in accordance with the scoring system outlined in this part.

(c) "Substandard" is the quality of frozen fried fish sticks that meet the requirements of Description of product, but otherwise fail to meet the requirements of "U.S. Grade B."

Determination of the grade

The grade is determined by examining the product in the frozen and cooked states and is evaluated by considering the following factors:

(a) *Factors rated by score points.* Points are deducted for variations in the quality of each factor in accordance with the schedule in Table 1. The total of points deducted is subtracted from 100 to obtain the score. The maximum score is 100; the minimum score is 0.

(b) *Factors not rated by score points.* The factor of "flavor and odor" is evaluated organoleptically by smelling, and tasting, after the product has been cooked in accordance with Definitions.

(1) Good flavor and odor (essential requirements for a Grade A Product) means that the cooked product has the typical flavor and odor of the indicated species of fish and of the breading and is free from rancidity, bitterness, staleness, and off-flavors and off-odors of any kind.

(2) Reasonably good flavor and odor (minimum requirements of a Grade B Product) means that the cooked product is lacking in good flavor and odor but is free from objectionable off-flavors and off-odors of any kind.

Definitions

(a) Selection of the sample unit: The sample unit shall consist of 10 frozen fried fish sticks taken at random from one or more packages as required. The fish sticks are spread out on a flat pan or sheet and are examined according to Table 1. Definitions of factors for point deductions are as follows:

(b) Examination of sample, frozen state:

(1) "Condition of package" refers to the presence in the package of free excess oil and/or loose breading and/or loose frost.

(2) "Ease of separation" refers to the difficulty of separating sticks from each other or from packaging material that are frozen together after the frying operation and during the freezing.

(3) "Broken stick" means a stick with a break or cut equal to or greater than one-half the width of the stick.

(4) "Damaged stick" means a stick that has been mashed, physically or mechanically injured, misshaped or mutilated to the extent that its appearance is materially affected. The amount of damage is measured by using a grid composed of squares ¼ inch (that is, squares with an area of 1/16 square inch each) to measure the area of the stick affected. Deductions are not made for damage less than 1/16 square inch.

(5) "Uniformity of size" refers to the degree of uniformity in length and width of the frozen sticks. Deviations are measured from the combined lengths of the two longest minus the combined lengths of the two shortest and/or the combined widths of the two widest minus the combined widths of the two narrowest. Deductions are not made for overall deviations in length of width up to ¼ inch.

(6) "Uniformity of weight" refers to the degree of uniformity of the weights of the sticks. Uniformity is measured by the combined weight of the two heaviest sticks divided by the combined weight of the two lightest sticks. No deductions are made for weight ratios less than 1.15.

(c) Cooked state means the state of the product after cooking in accordance with the instructions accompanying the product. However, if specific instructions are lacking, the product for inspection is cooked as follows: Transfer the product, while still in frozen state, onto a flat pan or sheet of sufficient size to accommodate 10 sticks spaced at least ¼ inch apart. Place the pan and frozen contents in a

properly ventilated oven preheated to 400°F until thoroughly cooked (about 15 to 18 minutes or to an internal temperature of 160° F.).

(d) Examination of sample, cooked state:

(1) "Distortion" refers to the degree of bending of the long axis of the stick. Distortion is measured as the greatest deviation from the long axis. Deductions are not made for deviations of less than 1/4 inch.

(2) "Color" refers to the reasonably uniform color typical of the sample material.

(3) "Coating defects" refers to breaks, lumps, ridges, depressions, blisters or swells and curds in the coating of the cooked product. Breaks in the coating are objectionable bare spots through which the fish flesh is plainly visible. Lumps are objectionable outcroppings of breading on the stick surface. Ridges are projections of excess breading at the edges of the fish flesh. Depressions are objectionable visible voids or shallow areas which are lightly covered by breading. Blisters are measured by the swelling or exposed area in the coating resulting from the bursting or breaking of the coating. Curd refers to crater-like holes in the breading filled with coagulated albumin. Instances of these defects are measured by a plastic grid marked off in ¼-inch squares (1/16 square inch). Each square is counted as one whether it is full or fractional.

(4) "Blemishes" refers to skin, blood spots, or bruises, objectionable dark fatty flesh, carbon specks or extraneous material. Instances of blemishes refers to each occurrence measured by placing a plastic grid marked off in ¼ inch squares (1/16 square inch) over the defect area. Each square is counted as one whether it is full or fractional.

(5) "Bones" means the presence of potentially harmful bones in a stick. A potentially harmful bone is one that after being cooked is capable of piercing or hurting the palate.

(6) "Texture defects of the coating" refers to the absence of the normal textural properties of the coating which are crispness and tenderness. Coating texture defects are dryness, sogginess, mushiness, doughyness, toughness, pastiness, as sensed by starchiness or other sticky properties felt by mouth tissues; oiliness to the degree of impairment of texture; and/or mealiness.

(7) "Texture defects of the fish flesh" refers to the absence of normal textural properties of the cooked fish flesh, which are tenderness, firmness, arid moistness without excess water. Texture defects of the flesh are dryness, softness, toughness, and rubberyness.

(e) General definitions:

(1) "Small" (overall assessment) refers to a condition that is noticeable but is not seriously objectionable.

(2) "Large" (overall assessment) refers to a condition that not only is noticeable but is seriously objectionable.

(3) "Minor" (individual assessment) refers to a defect that slightly affects the appearance and/or utility of the product,

(4) "Major" (individual assessment) refers to a defect that seriously affects the appearance and/or utility of the product.

(f) "Minimum fish flesh content--End-product determination" refers to the minimum percent, by weight, of the average fish flesh content of three frozen fried fish sticks (sample unit for fish flesh determination), as determined by the following method:

(1) *Equipment needed.*

(i) Water bath (for example, a 3- to 4-liter beaker).
(ii) Balance accurate to 0.1 gram.
(iii) Clip tongs of wire, plastic, or glass.
(iv) Stop-watch or regular watch readable to a second.
(v) Paper towels.
(vi) Spatula, 4-inch blade with rounded tip.
(vii) Nut pick.
(viii) Thermometer (immersion type) accurate to ± 2° F.

(2) *Procedure.*

(i) Calculate the weight of three frozen fried fish sticks by dividing the declared net weight on the label by the number of fish sticks indicated on the label to obtain the weight of an individual fish stick and multiply by three. If the number of fish sticks contained in the package is not declared on the label, the actual weight of three frozen fried fish sticks shall be used:
(ii) Using tongs, place each stick individually in the water bath maintained at 63° F. to 120° F. and allow to remain until the breading becomes soft and can easily be removed from the still frozen fish flesh (between 10 to 110 seconds for sticks held in storage at O° F.).
(iii) At the end of the immersion, remove the fish stick from the water and blot the stick lightly with double thickness paper towelings. This step should be completed in no more than 7 seconds.
(iv) Scrape and remove the breading material and batter from the fish with the spatula removing the softened breading material and batter from the narrow sides and ends of the stick on the initial movements, followed by removing the material from the wider flat surfaces.
(v) Residual batter and breading may remain in some sticks prepared using batters that are difficult to remove after one dipping. When this occurs redip the partially "debreaded" stick in 63° to 86° F. (room temperature) water for approximately 2 seconds. Follow step (iii) toweling, and remove the softened residual batter and breading material.
(vi) Weigh all the "debreaded" fish sticks.
(vii) Calculate the percent fish flesh in the sample unit by the following formula:
% fish flesh = Weight of fish flesh (vi) x 100/Weight of three fried fish sticks (i)

(g) "Minimum fish flesh content--On-line determination" refers to the minimum percent fish flesh, by weight, of the average weight of three groups of five fish sticks (sample unit for fish flesh determination), as determined by the following:

(1) Equipment needed--Balance accurate to 0.1 gram.

(2) Procedure:

(i) Weigh three groups of five raw unbreaded fish sticks from the line. These weights should be recorded and averaged (average weight of three groups of five sticks) and percent fish flesh calculated immediately after the average weights are determined.

(ii) Calculate the percent fish flesh in the sample unit by using tile average weight of three groups of five unbreaded fish sticks and the declared net weight of five fried fish sticks. The declared net weight of five fried fish sticks is obtained by dividing the net weight declaration on the label by the number of fish sticks declared on the label and multiplying by 5. If the number of fish sticks is not declared on the label, the actual weight of five fried fish sticks shall be used.

% fish flesh = Weight of fish flesh [sample unit (i)] x 100/Declared or actual net weight of five fried fish sticks

NOTE: The percent fish flesh determined by the on-line method will usually differ from the percent fish flesh determined by the end-product method due to processing and variations associated therewith.

(iii) Frequency of on-line fish flesh content determination. A minimum of three determinations of fish flesh content shall be carried out for small production runs or lots, i.e., 3 x (three groups of five unbreaded fish sticks). For larger productions runs or lots, a minimum of one determination, i.e., 1 x (three groups of five unbreaded fish sticks) shall be carried out for every hour of production of product units of the same weight.

[42 FR 52764, Sept. 30, 1977, as amended at 51 FR 34991, Oct. 1, 1986]

Use of alternate methods for determinations fish flesh content

(a) The official end-product method in Definitions(f) for determining fish flesh content shall be used for lot and appeal inspections, and for inspections for verification in official establishments when the on-line method is used.

(b) The on-line method in Definitions(g) for determining fish flesh content may be used in official establishments during processing operations.

Tolerances for certification of officially drawn samples

The sample rate and grade of specific lots shall be certified in accordance with Part 260, Subpart A of this chapter (Regulations Governing Processed Fishery Products).

TABLE 1 - SCHEDULE OF POINT DEDUCTIONS PER SAMPLE UNIT OF 10 STICKS
(See footnotes at end of table.)

Factors Scored	Method of determining score	Deduct
	Frozen State	
1. Condition of package	Small degree: Loose free oil, and/or moderate loose breading and/or moderate frost Large degree: Oil soaking through package and/or excessive loose breading and/or excessive amount frost	2 5
2. Ease of separation	Minor: Hand separated with difficulty. Each affect Major: Separated only by knife or other instrument. Each affected	1 2
3. Broken stick	Break or cut greater than ½ inch length or width. Each affected	10
4. Damaged stick	Mashed, mechanically and/or physically injured, misshaped or mutilated[1] Minor: 1 to 3 instances. Each affected Major: Over 3 instances. Each affected	 2 4
5. Size	Deviation in length or width between the 2 largest and 2 smallest sticks is: Up to ¼ inch Over ¼ inch and up to ½ inch Over ½ inch	 0 3 10
	Uniformity	
6. Weight	Weight ration of 2 heaviest divided by the 2 lightest sticks: Over 1.0 but not over 1.15 Over 1.15 but not over 1.3 Over 1.3 but not over 1.4 Over 1.4	 0 2 5 10
	Cooked State	
7. Distortion	Minor: Bending, shrinking, twisting (¼ to ½ inch). Each affected Major: Excessive bending, shrinking, twisting (over ½ inch). Each affected	1 2
8. Color	Minor: Sticks differing slightly from average color of sticks in sample unit. Each affected Major: Sticks excessively dark or light from average color of sticks in sample unit. Each affected	2 4
9. Coating defects	Bare spots, blistering, ridges, breaks, curds[1] Minor: 1 to 3 instances. Each affected Major: Over 3 instances. Each affected	 1 3
10. Blemishes	Skin, blood spots, bruises and discolorations[1] Minor: 1 to 6 instances. Each affected Major: Over 6 instances. Each affected	 1 3
11. Bones	Sticks containing bones (potentially harmful). Each affected	10
	Texture	
12. Coating	Small degree: Moderately dry, soggy, doughy or tough Large degree: Farinaceous (mealy), pasty, very tough	5 15
13. Fish Flesh	Small degree: Moderately dry, soft, mushy Large degree: Dry to point of fibrousness, very mushy tough or rubbery	5 15

[1]An instance = each 1/16 square inch (¼-inch square).