



United States Standards for Grades of Frozen Raw Breaded Shrimp

Product description

Frozen raw breaded shrimp are whole, clean, wholesome, headless, peeled shrimp which have been deveined where applicable of the regular commercial species, coated with a wholesome, suitable batter and/or breading. Whole shrimp consist of five or more segments of unmutated shrimp flesh. They are prepared and frozen in accordance with good manufacturing practice and are maintained at temperatures necessary for the preservation of the product. Individual shrimp and/or pieces consolidated into larger units and covered with breading are not considered for grading under this standard.

Composition of the product

- (a) Frozen raw breaded shrimp shall contain not less than 50 percent by weight of shrimp material when the weight of the shrimp material is determined by the end product method as set forth in Definitions and Method of Analysis(u).
- (b) Shrimp material content of raw breaded shrimp may be determined by the on-line method as set forth in Definitions and Method of Analysis (v): Provided, that the results are at least in compliance with the shrimp material content requirement of 50 percent by weight when verified by the official end product method.
- (c) Production methods employed in official establishments shall be kept relatively constant for each product lot so as to minimize variations in any factor which may affect the relative shrimp material content.

Styles

- (a) Style I. “Regular Breaded Shrimp” are frozen raw breaded shrimp containing a minimum of 50 percent of shrimp material.
- (b) Style II. “Lightly Breaded Shrimp” are frozen raw breaded shrimp containing a minimum of 65 percent of shrimp material.

Types

- (a) Type I-Breaded fantail shrimp
 - (1) Subtype A. Split (butterfly) shrimp with the tail fin and the shell segment immediately adjacent to the tail fin.
 - (2) Subtype B. Split (butterfly) shrimp with the tail fin but free of all shell segments.
 - (3) Subtype C. Split (butterfly) shrimp without attached tail fin or shell segments.



(b) Type II-Breaded round shrimp

- (1) Subtype A. Round shrimp with the tail fin and the shell segment immediately adjacent to the tail fin.
- (2) Subtype B. Round shrimp with the tail fin but free of all shell segments.
- (3) Subtype C. Round shrimp without attached tail fin or shell segments.

(c) Type III-Breaded split shrimp. [Reserved]

Grades

- (a) “U.S. Grade A” is the quality of frozen raw breaded shrimp that when cooked possesses a good flavor and odor, and that for those factors which are rated in accordance with the scoring system outlined in the following sections the total score is not less than 85 points.
- (b) “U.S. Grade B” is the quality of frozen raw breaded shrimp that when cooked possesses a reasonably good flavor and odor, and that for those factors which are rated in accordance with the scoring system outlined in the following sections the total score is not less than 70 points.
- (c) “Substandard” is the quality of frozen raw breaded shrimp that fail to meet the requirements of “U.S. Grade B.

Ascertaining the grade

General. In addition to considering other requirements outlined in the standard, the following quality factors are evaluated in ascertaining the grade of the product.

- (a) Factors not rated by score points: Flavor and odor. Flavor and odor are determined by organoleptic means after the product has been cooked in a suitable manner (Definitions(u)).
- (b) Factors rated by score points: The quality of the product with respect to factors scored is expressed numerically on the scale of 100. Deductions from the maximum possible score of 100 are assessed for essential variations of quality within each factor. The score of frozen raw breaded shrimp is determined by observing the product in the frozen and thawed states.

Factors evaluated on the product in the breaded state

- (a) Factors affecting qualities that are measured on the product in the breaded state are uniformity of size, condition of coating, extraneous material, and damaged breaded shrimp. For the purpose of rating the factors that are scored in the breaded state, the schedule of point deduction in Table 1 applies. This schedule of point deductions is based on the examination of one complete individual package or intended package (sample unit) regardless of the net weight of the contents of the package.
- (b) The factor-ease of separation in the frozen state-shall be rated in addition to all other factors when frozen raw breaded shrimp is lot inspected on a lot basis.



Factors evaluated on unbreaded or thawed debreaded product

Factors affecting qualities that are measured on the product in the unbreaded or thawed debreaded state are degree of deterioration, dehydrations, sand veins, black spot, extra shell, extraneous material, and swimmerets. For the purpose of rating the factors that are scored in the unbreaded or thawed debreaded state, the schedule of point deductions in table 2 applies. This schedule of point deductions is based on the examination of 20 whole shrimp selected from the processing line or from one or more packages. Examination of this sample of 20 whole shrimp is continued under Definitions(u).

Hygienic processing

Frozen raw breaded shrimp shall be processed and maintained in accordance with the applicable requirements of the Good Manufacturing Practice Regulations contained in Part 128 of Title 21, CFR, and the applicable requirements contained in Part 260 of this chapter.

Definitions and methods of analysis

- (a) “Fantail shrimp”: This type is prepared by splitting and peeling the shrimp except that for Subtype A, the tail fin remains attached and the shell segment immediately adjacent to the tail fin remains attached. Subtype B, the tail fin remains, but the shrimp are free of all shell segments. Subtype C, the shrimp are free of tail fins and all shell segments.
- (b) “Round shrimp”: This type is the round shrimp, not split. The shrimp are peeled except that for Subtype A, the tail fin remains attached and the shell segment immediately adjacent to the tail fin remains attached. Subtype B, the tail fin remains, but the shrimp are free of all shell segments. Subtype C, the shrimp are free of all shell segments and tail fins.
- (c) Good flavor and odor: “Good flavor and odor”, essential requirements for a Grade A product, means that the cooked product has flavor and odor characteristics of freshly caught or well-refrigerated shrimp and the breading is free from staleness and off-flavors and off-odors of any kind. Iodoform is not to be considered in evaluating the product for flavor and odor.
- (d) Reasonably good flavor and odor. “Reasonably good flavor and odor” minimum requirements of Grade B products, means that the cooked product may be somewhat lacking in the good flavor and odor characteristics of freshly caught or well-refrigerated shrimp but is free from objectionable off-flavors and objectionable off-odors of any kind.
- (e) “Dehydration” refers to the occurrence of whitish areas on the exposed ends of the shrimp (due to the drying of the affected area) and to a generally desiccated appearance of the meat after the breading is removed.
- (f) “Deterioration” refers to any detectable change from the normal good quality of freshly caught shrimp. It is evaluated by noting in the thawed product deviations from the normal odor and appearance of freshly caught shrimp.
- (g) “Extraneous material” consists of non-edible material such as sticks, seaweed, shrimp thorax, or other objects that may be accidentally present in the package.



- (h) Slight: “Slight” refers to a condition that is scarcely noticeable but does affect the appearance, desirability, and/or eating quality of breaded shrimp.
- (i) Moderate: “Moderate” refers to a condition that is conspicuously noticeable but that does not seriously affect the appearance, desirability, and/or eating quality of the breaded shrimp.
- (j) Marked: “Marked” refers to a condition that is conspicuously noticeable and that does seriously affect the appearance, desirability, and/or eating quality of the breaded shrimp.
- (k) Excessive: “Excessive” refers to a condition that is very noticeable and is seriously objectionable and the product cannot be graded above Grade B; this is a limiting rule.
- (l) Halo: “Halo” means an easily recognized fringe of excess batter and breading extending beyond the shrimp flesh and adhering around the perimeter or flat edges of a split (butterfly) breaded shrimp.
- (m) Balling up: “Balling up” means the adherence of lumps of the breading material to the surface of the breaded coating, causing the coating to appear rough, uneven, and lumpy.
- (n) Holidays: “Holidays” means voids in the breaded coating as evidenced by bare or naked spots.
- (o) Damaged frozen raw breaded shrimp: “Damaged frozen raw breaded shrimp means frozen raw breaded shrimp that have been separated into two or more parts or that have been crushed or otherwise mutilated to the extent that their appearance is materially affected.
- (p) Black spot: “Black spot” means any blackened area that is markedly apparent on the flesh of the shrimp.
- (q) Sand vein: “Sand vein” means any black or dark sand vein that has not been removed, except for that portion under the shell segment adjacent to the tail fin when present.
- (r) Extra shell: “Extra shell” means any shell segment(s) or portion thereof, contained in the breaded shrimp except the first segment adjacent to the tail fin for Type I, Subtype A, and Type II, Subtype A.
- (s) Net weight: Net weight is determined by use of a balance and by following steps given below:
- Remove the overwrap. Weigh carton and all contents. Transfer breaded shrimp to balance and weigh. Weigh carton less shrimp but including waxed separators and inserts (if used), crumbs, and frost. Remove crumbs and frost from carton and separators. Weigh cleaned carton and separators. Net weight of the shrimp is the weight of the shrimp and of any loose breading and frost, exclusive of packaging material. The amount of loose breading and frost shall not exceed the limits of good manufacturing practices.



(t) Uniformity: “Uniformity” is determined for packs of various sizes by the ratio of the weights of the largest to the smallest breaded shrimp as outlined by the following schedule:

Up to 10 oz.	3 largest/3 smallest
10.1 oz. to 1.5 lb	6 largest/6 smallest
1.51 lb. to 2.5. lb.	8 largest/8 smallest
Over 2 1/2 lb	10 largest/10 smallest

(u) Percent shrimp material-official end product method:

(1) Equipment needed:

- (i) Two-gallon container approximately 9 inches in diameter.
- (ii) Two-vaned wooden paddle, each vane measuring approximately 1 inch by 3 inches.
- (iii) Stirring device capable of rotating the wooden paddle at 120 rpm
- (iv) Balance accurate to 0.01 ounce (0.1 gram).
- (v) U.S. standard sieve ½ inch sieve opening; 12-inch diameter.
- (vi) U.S. standard sieve-ASTM-No. 20, 12-inch diameter.
- (vii) Thermometer (immersion type accurate to ±2°F).
- (viii) Forceps, with blunt points.
- (ix) Shallow baking pan.
- (x) Rubber policeman to remove bits of breading from shrimp.

(2) Procedure:

- (i) Weigh sample (20 shrimp) to be debreaded. Fill container three-fourths full of water at 70-80°F. Suspend the paddle in the container leaving a clearance of at least 5 inches below the paddle vanes, and adjust speed to 120 rpm. Add shrimp and stir for 10 minutes. Stack the sieves, the ½ inch mesh over the No. 20 and pour contents of container onto them. Set the sieves under a faucet, preferably with spray attached, and rinse the shrimp without rubbing the flesh, being careful to keep all rinsings over the sieves and not having the stream of water hit the shrimp on the sieve directly. Use a rubber policeman to remove adhering breading. Lay the shrimp out singly on the sieve as rinsed, split side down and tails up. Remove top sieve and drain on a 45-degree angle for 2 minutes, then transfer shrimp to balance. Rinse contents of the No. 20 sieve onto a shallow baking pan and collect any particles of shrimp material (flesh, tail fin), and add to shrimp on balance and weigh.
- (ii) Calculate percent shrimp material.

$$\% \text{ shrimp material} = \left[\frac{\text{Weight of debreaded sample (20 shrimp)} \times 100}{\text{Weight of sample (20 shrimp)}} \right] + 2$$

(v) Percent shrimp material--on-line method: Percent shrimp material determined by the on-line method refers to the percent by weight of shrimp material in a sample as described below:

(1) Equipment needed:

- (i) Water bath (a container with a 3 to 4-liter capacity).
- (ii) Balance accurate to 0.1 gram or 0.01 ounce.
- (iii) Stop-watch or regular watch readable to a second.
- (iv) U.S. Standard sieve ½ inch sieve opening; 12-inch diameter.
- (v) U.S. Standard sieve ASTM No. 20, 12-inch diameter.

- (vi) Thermometer (immersion type accurate to $\pm 2^{\circ}\text{F}$).
- (vii) Forceps, with blunt points.
- (viii) Shallow pan.
- (ix) Rubber policeman to remove bits of breading from shrimp.

(2) Procedure:

- (i) Select in a random manner, a composite sample of 20 unfrozen raw breaded shrimp from production line(s). Weigh the composite sample on a scale, determining the weight of the sample to the nearest 0.1 gram or 0.01 ounce. Place the sample in a water bath filled to three-fourths capacity and in a container maintained at 60 F.- 85 F. After shrimp are submerged in water and breading becomes soft, a “gentle” swirling action with hands may be applied to the shrimp to speed up the removal of the breading. Stack the sieves, the inch mesh over the No. 20 and pour contents of container into them. Remove top sieve and drain on 45-degree angle for 2 minutes then transfer shrimp to balance. Rinse contents of No. 20 sieve onto a shallow pan and collect any particles of shrimp material (flesh, tail fin, etc.), and add to the shrimp on the balance and then weigh.
- (ii) Calculate percent shrimp material:
 $\% \text{ shrimp material} = \text{Weight of debreaded sample} \times 100 / \text{Weight of sample}$
- (iii) Frequency of on-line shrimp material content determination. A minimum of three determinations of shrimp material content shall be carried out for small production runs or lots of the same style product, i.e., 3 x (20 unfrozen raw breaded shrimp). For larger production runs or lots of the same style product, a minimum of one determination, i.e., 1 x (20 unfrozen raw breaded shrimp) shall be carried out for every hour of production of product of the same style.

(w) Cooked in a suitable manner: “Cooked in a suitable manner” means cooked in accordance with the instructions accompanying the product. If, however, specific instructions are lacking, the product for inspection is cooked as follows:

- (1) Transfer the breaded shrimp, while still frozen, in a wire mesh deep fry basket sufficiently large to hold the shrimp in a single layer without touching one another.
- (2) Lower the basket into a suitable liquid oil or hydrogenated vegetable oil at 350 - 375 F. Cook for 3 minutes, or until the shrimp attain a pleasing golden brown color.
- (3) Remove basket from the oil and allow the shrimp to drain for 15 seconds. Place the cooked shrimp on a paper towel or napkin to absorb the excess oil.

[47 FR 21841, May 20, 1982, as amended at 51 FR 34991, Oct. 1, 1986]

Use of alternate methods of shrimp material determination

(a) The official end product method in § 265.171(u) for determining shrimp material content shall be used for lot inspection, appeal inspection, and inspection for verification in official establishments when the on-line method is used.



(b) The on-line method in Definitions and method of analysis(v) (2) for determining shrimp material content may be used during processing operations.

Tolerances for certification of officially drawn samples.

The sample rate and grades of specific lots shall be certified in accordance with Part 260 of this chapter.

TABLE 1 -SCHEDULE OF POINT DEDUCTIONS FOR RATING IN BREADED STATE

FACTOR	QUALITY DESCRIPTION	DEDUCTION ALLOWED POINTED
1. Ease of separation in the frozen state	Separate easily after being removed from carton and exposed to room temperature for not more than 4 minutes.	3
	Separate easily after being removed from carton and exposed to room temperature for not more than 6 minutes.	8
	Does not separate easily after being removed from carton and exposed to room temperature for 6 minutes.	10
2. Uniformity	Ratio of weight of largest to smallest breaded shrimp in sample unit as defined under Definitions(t) Up to 1.50 0 1.51-1.60 1 1.61-1.70 2 1.71-1.80 3 1.81-1.90 4 1.91-2.00 5 2.01-2.10 6 2.11-2.20 7 2.21-2.30 8 2.31-2.40 9 Over 2.40 10	
3. Condition of coating	Degree of halo or balling up or holidays (identify type of defect by circling the proper word): Slight - each 20 percent by count or fraction thereof 1 Moderate - each 20 percent by count or fraction thereof 2 Marked - each 20 percent by count or fraction thereof 4 Excessive - each 20 percent by count or fraction thereof 16	
4. Damaged breaded shrimp	For each 5 percent by count or fraction thereof Tail fin broken or missing each 5 percent or fraction thereof (except in Type I, subtype C, and Type II, subtype C).	3 1
5. Extraneous material	If extraneous material, except filthy or deleterious substances, is found in more than one package per lot, the entire lot shall be declared substandard ¹ .	

¹ Filthy or deleterious substances in food products constitute a violation of the Food, Drug, and Cosmetic Act. Products containing such substances are ineligible for the purpose of applying this document.



TABLE 2-SCHEDULE OF POINT DEDUCTIONS FOR EXAMINATION IN UNBREADED OR THAWED DEBREADED STATE

[Subtotals brought forward]

FACTOR	QUALITY DESCRIPTION	DEDUCTION ALLOWED POINTS
1. Degree of dehydration	Slight - each shrimp Moderate - each shrimp..... Marked - each shrimp..... Excessive - each shrimp.....	1 2 3 16
2. Deterioration	Slight - each shrimp..... Moderate - each shrimp..... Marked - each shrimp..... Excessive - each shrimp (provided, that if excessive deterioration occurs in more than one sample unit per sample, the entire lot shall be declared substandard).	2 5 10 20
3. Sand veins where applicable ¹	For each dark vein present deduct according to the following schedule: Equivalent in length to two segments..... Equivalent in length to three segments Equivalent in length to four or more segments.....	1 2 3
4. Black spot	Slight but obvious, on average Moderate, on average Marked - each shrimp.....	3 6 3
5. Extra shell (see subtypes definition).	(Beyond first segment adjacent to tail fin only for Type I, subtype A, and Type II, subtype A): Less than one whole extra shell segment One extra segment or more	1 3
6. Swimmerets	For last pair only adjacent to tail fins For more than last pair	1 3
7. Extraneous material	If extraneous material, except filthy or deleterious substances, are found in more than one package per lot, the entire lot shall be declared substandard ²	

¹ Deduction points for sand veins shall not be applied to shrimp smaller than 70 count per pound in the raw, headless state. The corresponding size in the breaded state is 40 count per pound and 80 count per pound in the peeled state.

² Filthy or deleterious substances in food products constitute a violation of the Food, Drug, and Cosmetic Act. Products containing such substances are ineligible for the purpose of applying this document.

[42 FR 52776, Sept 30, 1977, as amended at 51 FR 34991, Oct. 1, 1986