



## United States Standards for Grades of Frozen Fish Fillet Blocks

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### Scope and product description

(a) These U.S. Standards for Grades apply to frozen fish blocks which are rectangular shaped masses made from a single species of fish flesh. They are made from fillets or fillet pieces that are either skin-on and scaled or skinless. Blocks processed from skin-on fish flesh shall be so labeled. The blocks shall not contain minced or comminuted fish flesh. The blocks shall not be made by restructuring (reworking) pieces of fish blocks into the shape of a fish block.

(b) These Standards for Grades are implemented in accordance with guidance set forth in part II of NOAA Handbook 25, "Inspector's Instructions for Grading Frozen Fish Blocks."

### Grades.

(a) U.S. Grade A fish blocks shall:

- (1) Possess good flavor and odor in accordance with Grade Determination; and
- (2) Comply with the limits for physical defects for U.S. Grade A quality in accordance with Grade Determination.

(b) U.S. Grade B fish blocks shall

- (1) Possess reasonably good flavor and odor in accordance with Grade Determination; and
- (2) Comply with the limits for physical defects for U.S. Grade B quality in accordance with § Grade Determination.

(c) U.S. Grade C fish blocks shall:

- (1) Possess reasonably good flavor and odor in accordance with Grade Determination; and
- (2) Comply with the limits for physical defects for U.S. Grade C quality in accordance with Grade Determination.

(d) Substandard fish blocks shall fail to meet one or more of the requirements given in paragraphs (a), (b), and (c) of this section for U.S. Grades A, B, and C.

### Grade determination

(a) *Procedures for grade determination.* The grade shall be determined by evaluating a product in the frozen, thawed and cooked states according to paragraphs of this section-namely, sampling; flavor and odor; physical defects; listing defect points; and grade assignment.

(b) *Sampling.* Sampling shall be done in accordance with the sampling plan given in Sampling Plan for Fish Blocks.

- (1) For examination in the frozen state and the thawed state, a sample unit is one fish block.
- (2) For examination in the cooked state, a sample unit is at least three 4- to 6-ounce (113.4 to 170.1 g) samples which are taken from a thawed sample unit.



(c) *Evaluation of flavor and odor.*

- (1) *Good* flavor and odor (essential quality requirements for a U.S. Grade A product) mean that the raw product has the odor and the cooked product has the flavor and odor characteristics of the indicated species of fish and are free from off-flavors and off-odors of any kind.
- (2) *Reasonably good* flavor and odor (minimum requirements of a U.S. Grade B and a U.S. Grade C product) mean that the raw product or the cooked product is lacking in good odor (for the raw product) or good flavor and odor (for the cooked product) which is characteristic of the indicated species. Both the raw and the cooked products are free from objectionable off-flavors and off-odors of any kind.

(d) *Examination for physical defects.* Each sample unit shall be examined for physical defects using the list of definitions of defects given in paragraph (e) of this section.

(e) *Definitions of physical defects-*

- (1) *Dehydration.* This defect refers to loss of moisture from the surface of a fish block during frozen storage. Affected areas have a whitish appearance.
  - (i) *Moderate dehydration* masks the surface color of the product and affects more than 5 percent up to and including 15 percent of the surface area. If more than 15 percent of the surface area is affected, each additional 15 percent of surface area affected is another instance. Moderate dehydration can be readily removed by scraping with a blunt instrument.
  - (ii) *Excessive dehydration* masks the normal flesh color and penetrates the product. It affects more than 5 percent up to and including 10 percent of the surface area. If more than 10 percent of the surface area is affected, each additional 10 percent of surface area affected is another instance. Excessive dehydration requires a knife or other sharp instrument to remove.
- (2) *Uniformity of block size.* This defect refers to the degree of conformity to the declared size. It includes deviations from the standard length, width or thickness. Only one deviation for each dimension shall be counted.
  - (i) *Moderate.* A deviation of length and width of inch (0.32 cm) or more up to and including ¼ inch (0.64 cm). A deviation of thickness of 1/16 inch (0.16 cm) or more up to and including inch (0.32 cm).
  - (ii) *Excessive.* If over ¼ inch (0.64 cm), each additional inch (0.32 cm) of length and width is another instance. If over (0.32 cm), each additional 1/16 inch (0.16 cm) of thickness is another instance.
- (3) *Underweight* refers to underweight deviations from the stated weight.
  - (i) *Slight.* From 0.1 ounce (2.84 g) up to and including 1.0 ounce (28.35 g).
  - (ii) *Moderate.* Over 1.0 ounce (28.35 g) up to and including 4.0 ounces (113.4 g). (iii) *Excessive.* If over 4.0 ounces (113.4 g), each additional 1.0 ounce (28.35 g) is another instance.



- (4) *Angles*. An acceptable edge angle is an angle formed by two adjoining surfaces whose apex (deviation from 90 degrees) is within  $\frac{3}{8}$  inch (0.95 cm) off a carpenter's square placed along its surfaces. An acceptable corner angle is an angle formed by three adjoining surfaces whose apex is within  $\frac{3}{8}$  inch (0.95 cm) of a carpenter's square.
- (5) *Improper fill*. This defect refers to voids, air packets, ice pockets, ragged edges, bumps, depressions, damage, and embedded packaging material, each of which is greater than inch (0.32 cm) in depth, and which would result in product loss after cutting. It is estimated by determining the minimum number of 1-ounce (28.35 g) model units that could be affected adversely. For the purpose of estimating product loss, the 1-ounce (28.35 g) model unit shall have the dimensions  $4 \times 1 \times \frac{5}{8}$  inch (10.16 x 2.54 x 1.59 cm). The total number of model units that would be affected adversely is the number of instances.
- (6) *Belly flaps (Napes)* may be either loose or attached to a fillet or part of a fillet. The maximum amount of belly flaps should not exceed 15 percent by declared weight of the block if this amount does exceed 15%, each additional 5 percent by declared weight is another instance.
- (7) *Blood spots*. Each lump or mass of clotted blood greater than  $\frac{3}{16}$  inch (0.48 cm) up to and including  $\frac{3}{8}$  inch (0.95 cm) in any dimension is an instance. If a blood spot is larger than  $\frac{3}{8}$  inch (0.95 cm), each additional  $\frac{3}{16}$  (0.48 cm) is another instance.
- (8) *Bruises* include distinct, unnatural, dark, reddish, grayish, or brownish off-colors due to diffused blood. Each instance is each bruise larger than 0.5 square inch (3.32 cm<sup>2</sup>) and less than 1.5 square inch (9.68 cm<sup>2</sup>). For each bruise 1.5 square inch (9.68 cm<sup>2</sup>) or larger, each additional complete 1.0 square inch (6.45 cm<sup>2</sup>) is another instance.
- (9) *Discoloration* refers to deviations from reasonably uniform color characteristics of the species used, such as melanin deposits, yellowing, rusting or other kinds of discoloration of the fish flesh.
- (i) *Moderate*. A noticeable but moderate degree which is greater than 0.5 square inch (3.23 cm<sup>2</sup>) up to and including 1.5 square inch (9.68 cm<sup>2</sup>) is one instance. If the discoloration is greater than 1.5 square inch (9.68 cm<sup>2</sup>), each additional complete 1.0 square inch (6.45 cm<sup>2</sup>) is another instance.
- (ii) *Excessive*. An excessive degree of discoloration which is greater than 0.5 square inch (3.23 cm<sup>2</sup>) up to and including 1.5 square inch (9.68 cm<sup>2</sup>) is one instance. If the discoloration is greater than 1.5 square inch (9.68 cm<sup>2</sup>) each additional complete 1.0 square inch (6.45 cm<sup>2</sup>) is another instance.
- (10) *Viscera, roe and lace*. Viscera and roe refer to any portion of the internal organs. Each occurrence of viscera and roe is an instance. Lace (frill) is a piece of tissue adhering to the edge of a flatfish (Order *Pleuronectiformes*) fillet. For each lace, each  $\frac{1}{2}$  inch (1.27 cm) is each instance.
- (11) *Skin*. In skinless fish blocks, each piece of skin larger than 0.5 square inch (3.23 cm<sup>2</sup>) up to and including 1.0 square inch (6.45 cm<sup>2</sup>) is an instance. For each piece of skin that is larger than



1.0 square inch (6.45 cm<sup>2</sup>), each additional complete 0.5 square inch (3.23 cm<sup>2</sup>) in area is another instance. For pieces of skin smaller than 0.5 square inch (3.23 cm<sup>2</sup>), the number of 0.5-square-inch (3.23 cm<sup>2</sup>) squares fully or partially occupied after collecting these pieces on a grid is the number of instances.

- (12) *Membrane (black belly lining)*. Each piece of membrane (black belly lining) larger than 0.5 square inch (3.23 cm<sup>2</sup>) up to and including 1.5 square inch (9.68 cm<sup>2</sup>) is an instance. For pieces of membrane (black belly lining) that are larger than 1.5 square inch (9.68 cm<sup>2</sup>), each additional complete 0.5 square inch (3.23 cm<sup>2</sup>) in area is another instance.
- (13) *Scales*.
- (i) For skin-on fillets that have been scaled, an instance is an area of scales over 0.5 square inch (3.23 cm<sup>2</sup>) up to and including 1.5 square inch (9.68 cm<sup>2</sup>). If the area is greater than 1.5 square inch (9.68 cm<sup>2</sup>), each additional complete 1.0 square inch (8.45 cm<sup>2</sup>) is another instance. Loose scales are counted and instances are deducted in the same manner as for skinless fillets.
  - (ii) For *skinless fillets*, the first five to ten loose scales is an instance. If there are more than ten loose scales, each additional complete count of five loose scales is another instance.
- (14) *Foreign material*. Any harmless material not derived from fish, such as packaging material. Each occurrence is an instance.
- (15) *Bones (including pin bone and fin bone)*.
- (i) Each bone defect to a bone or part of a bone whose maximum profile is 3/16 inch (0.48 cm) or more in length, or at least 1/32 inch (0.08 cm) in shaft diameter or width, or, for bone chips, a longest dimension of at least 3/16 inch (0.48 cm).
  - (ii) An excessive degree of bone defect is each bone whose maximum profile can not be fitted into a rectangle, drawn on a flat, solid surface, that has a length of 1 3/16 inch (3.02 cm) and a width of 7/16 inch (0.95 cm).
- (16) *Fins or part fins*. This defect refers to two or more bones connected by membrane, including internal or external bones, or both, in a cluster.
- (i) *Moderate*. Connected by membrane in a cluster, no internal bone.
  - (ii) *Excessive*. Connected by membrane in a cluster with internal bone.
- (17) *Parasites*-
- (i) *Metazoan parasites*. Each such parasite or fragment of such a parasite that is detected is an instance.
  - (ii) *Parasitic copepods*. Each such parasite or a fragment of such a parasite that is detected is an instance.
- (18) *Texture* means that the cooked product has the textural characteristics of the indicated species of fish. It does not include any abnormal textural characteristics such as mushy, soft, gelatinous, tough, dry or rubbery.



- (i) *Moderate*. Moderately abnormal textural characteristics.
- (ii) *Excessive*. Excessively abnormal textural characteristics.

(f) *Listing defect points*. When a sample unit is examined for physical defects using the list of defect definitions given in paragraph (e) of this section, defects are noted and numerical values are assigned in accordance with Table 1. The numbers assigned to defects in Table I are points. For examination in the frozen state and for belly flaps and texture, the defect points are added together. For examination of defects number 7 through 17 in the thawed state, the defect points are added together and this sum is divided by the declared weight of the sample unit in pounds. Express the result to the nearest whole number. Then add the sum of defects points for the frozen state and for belly flaps and texture to the sum of defect points for the thawed state expressed on a per pound basis. This result is used to determine the sample unit grade. The scoring system is based on a perfect score of zero (no physical defects).

(g) *Grade assignment*. Each sample unit will be assigned its grade in accordance with the limits for defects summarized as follows:

GRADE ASSIGNMENT	FLAVOR AND ODOR	MAXIMUM NUMBER OF DEFECT POINTS
U.S. Grade A	Good	15
U.S. Grade B	Reasonably good	30
U.S. Grade C	Reasonably good	40

If a sample unit has been assigned a grade for flavor and odor that is different from the grade indicated by the number of defect points, the sample unit grade will be the lower grade.

Table I--Defect Table for a Fish Fillet Block Sample [Size of a sample unit is given in Grade Determination (b)]

DEFECT DESCRIPTION	DEGREE	POINT VALUE
1. <u>Dehydration</u> <b>Moderate</b> (easily scraped) Affecting 5 to 15% of surface area Each additional 15% of surface are affected	Each instance Each additional instance	3 7
<b>Excessive</b> (difficult to scrape) Affecting 5 to 10% of surface area Each addition 10% of surface area affected	Each instance Each additional instance	7 16
2. <u>Uniformity of block size</u> Deviation from each dimension <b>Moderate</b> Length, width; 1/8 inch to 1/4 inch (0.32 to 0.64 cm) Thickness; 1/16 inch to 1/8 inch (0.16 to 0.32 cm)	Each instance Each instance	3 3
<b>Excessive</b> Length, width; each additional 1/8 inch (0.32 cm) Thickness; each additional 1/16 inch (0.16 cm)	Each additional instance Each additional instance	6 6



3. <u>Underweight</u> <b>Slight</b> 0.1 ounce to 1.0 ounce (2.84 to 28.35 g) Over 1.0 to 4.0 ounce (28.35 to 113.40 g)  <b>Excessive</b> over 4.0 ounce (113.40 g), each additional 1.0 ounce (28.35 g)	Each instance	3
	Each instance	11
	Each additional instance	16
4. <u>Angles</u> Edge angle - apex should be within 3/8 inch (0.95 cm) Corner angle - apex should be within 3/8 inch (0.95 cm)	Each unacceptable edge	1
	Each unacceptable corner	1
5. <u>Improper fill</u> If over 1/8 inch (0.32 cm) deep, minimum number of 1-ounce (28.35 g) units affected	Each instance	1
<b>THAWED STATE</b>		
6. <u>Belly flaps</u> (Napes) If over 15%, each additional 5%	Each instance	16
7. <u>Blood spots</u> Each spot greater than 3/16 inch to 3/8 inch (0.48 to 0.95 cm) If spot over 3/8 inch (0.95 cm), each additional 3/16 inch (0.48 cm)	Each instance	2
	Each additional instance	4
8. <u>Bruises</u> Each bruise 0.5 square inch (3.23 cm <sup>2</sup> ) to 1.5 square inch (9.68 cm <sup>2</sup> ) If bruise 1.5 square inch (9.66 cm <sup>2</sup> ) or larger, each additional 1.0 square inch (6.45 cm <sup>2</sup> )	Each instance	2
	Each additional instance	2
9. <u>Discoloration</u> Moderate degree, over 0.5 square inch (3.23cm <sup>2</sup> ) to 1.5 square (9.68 cm <sup>2</sup> ) Moderate degree, over 1.5 square inch (9.68 cm <sup>2</sup> ), each additional 1.0 square inch (6.4 cm <sup>2</sup> ) Excessive degree, over 0.5 square inch (3.23cm <sup>2</sup> ) to 1.5 square (9.68 cm <sup>2</sup> ) Excessive degree, over 1.5 square inch (9.68 cm <sup>2</sup> ), each additional 1.0 square inch (6.4 cm <sup>2</sup> )	Each instance	4
	Each additional instance	4
	Each instance	16
	Each additional instance	16
10. <u>Viscera, roe and lace</u> Viscera, roe; each occurrence Lace (frills), each 1/2 inch (1.27 cm)	Each instance	8
	Each instance	8
11. <u>Skin</u> (applies to skinless fish blocks) Each piece over 0.5 square inch (3.23cm <sup>2</sup> ) to 1.0 square (6.45 cm <sup>2</sup> ) If pieces over 1.0 square inch (6.45 cm <sup>2</sup> ), each additional 0.5 square inch (3.23 cm <sup>2</sup> ) If pieces under 0.5 square inch (3.23 cm <sup>2</sup> ) number of 0.5 square inch (3.23 cm <sup>2</sup> ) squares occupied	Each instance	2
	Each additional instance	10
	Each instance	6
12. <u>Membrane (black belly lining)</u> Each piece over 0.5 square inch (3.23 cm <sup>2</sup> ) to 1.5 square inch (9.68 cm <sup>2</sup> ) Over 1.5 square inch (9.68 cm <sup>2</sup> ) each additional 0.5 square inch (3.23 cm <sup>2</sup> )	Each instance	4
	Each additional instance	10



13A. <u>Scales</u> For skin-on fillets that have been scaled, an area over 0.5 square inch (3.23 cm <sup>2</sup> ) to 1.5 square inch (9.68 cm <sup>2</sup> ) If area over 1.5 square inch (9.68 cm <sup>2</sup> ) each additional 1.0 square inch (6.45 cm <sup>2</sup> )	Each instance Each additional instance	2 2
13B. <u>Scales</u> For skinless fillets, the first 5 to 10 loose scales If over 10 loose scales, each additional 5 loose scales	Each instance Each additional instance	2 2
14. <u>Foreign Material</u> Harmless material	Each instance	16
15. <u>Bones</u> Each bone defect as defined Each excessive degree of bone defect as defined	Each instance Each instance	18 48
16. <u>Fins or part fins</u> Moderate (no internal bone) Excessive (with internal bone)	Each instance Each instance	18 48
17. <u>Parasites</u> Each metazoan parasite or fragment of it as defined Each parasitic copepod or fragment of it as defined	Each instance Each instance	36 36
<b>Cooked State</b>		
18. <u>Texture</u> Moderate degree Excessive degree as defined	Moderate Excessive	6 31

### Tolerances for lot certification

(a) The grade assigned to a lot is the grade indicated by the average of the total scores, provided that the number of sample units in the next lower grade for both physical defects and flavor and odor does exceed the acceptance number as indicated in the sampling plans contained in Sampling Plan for Fish Blocks and the provisions of 50 CFR 260.21. In 50 CFR 260.21, the four score points are additive, not subtractive.

(b) The grade assigned to a lot is one grade below the majority of all the sample unit grades if either:

- 1) The number of sample units in the next lower grade does exceed the acceptance number as given in the sampling plans contained in Sampling Plan for Fish Blocks; (2) The grade of any one of the sample units is more than one grade below the majority of all the sample unit grades.

### Hygiene

All lots to be assigned a grade shall be processed and maintained in accordance with §§ 260.98 through 260.104 of this subchapter and of the good manufacturing practice regulations contained in 21 CFR part 110.

### Methods of Analysis

Product samples will be analyzed in accordance with the “Official Methods of Analysis” of the Association of Official Analytical Chemists (AOAC), Fourteenth Edition (1984), sec 18.004 (page 331) plus sec 32.059 and 32.060 (page 613) of the Thirteenth Edition (1980), Sec 18.003 (page 285) plus §§ 32.050 and 32.051 (page 543) which are incorporated by reference. Copies of the AOAC methods may be obtained from AOAC, 2200 Wilson Blvd., Suite 400, Arlington, VA 22201. These methods are incorporated as they exist



on the date of approval. A notice of any change in the sections of the AOAC methods cited herein will be published in the Federal Register.

**Sampling Plan for fish blocks**

<b>Lot size (No. of blocks)</b>	<b>Sampling size (No. of blocks to be tested)(n)</b>	<b>Acceptance No.<sup>1</sup>(c)</b>
15 or less	2	0
16-50	3	0
51-150	5	1
151-500	8	1
501-3200	13	2
3201-35000	20	3
Over 35000	32	5

<sup>1</sup>For interpretation of this column in grading, see Tolerances for Lot Certification [FR Doc. 90-24258 Filed 10-15-90; 8:45 am]

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