

§ 381.66

9 CFR Ch. III (1-1-00 Edition)

be chilled in water and ice, but may be chilled either in ice in continuously drained containers or by immediate entry into a freezer. Such poultry parts shall be chilled as provided in § 381.66(b)(2).

(m) All offal resulting from the evisceration operation shall be removed from the official establishment as often as necessary to prevent the development of an insanitary condition.

(n) Containers to be used for packaging poultry products shall be clean, free from substances and odors that would result in adulteration of the products and of sufficient strength and durability to protect the products adequately during normal distribution.

(o) Paper and other material used for lining barrels or other containers in which poultry products are packed shall be of such kinds as do not tear readily during use but remain intact when moistened by the products. Wooden containers to be used for packing poultry products shall be fully lined except when the poultry products to be packed therein are fully wrapped.

(p) Protective coverings shall be used for poultry products while they are in any official establishment or are being transported between official establishments, which are adequate to protect the products against contamination by any foreign substances (including, but not being limited to, dust, dirt, and insects) considering the means employed in transporting the products.

(q)(1) Detached ova may be collected for human food in the official establishment provided it is done in a sanitary manner: *Provided*, The identity of such ova with the carcass shall be maintained past the point of inspection and ova from condemned carcasses shall likewise be condemned and treated as required in § 381.95: *And provided further*, That ova for human food are cooled, packaged, and otherwise handled so as to be fit for human food.

(2) Detached ova harvested for human food may leave the official establishment only for movement to an egg products processing plant for processing as allowed in § 59.440 of the regulations (7 CFR 59.440) under the Egg Products Inspection Act and when moved from the official establishment shall bear labeling which indicates that

the ova were harvested under sanitary supervision of the Inspection Service.

[37 FR 9706, May 16, 1972, as amended at 40 FR 42338, Sept. 12, 1975; 49 FR 3643, Jan. 30, 1984; 62 FR 5143, Feb. 4, 1997]

§ 381.66 Temperatures and chilling and freezing procedures.

(a) *General*. Temperatures and procedures which are necessary for chilling and freezing ready-to-cook poultry, including all edible portions thereof, shall be in accordance with operating procedures which insure the prompt removal of the animal heat and will preserve the condition and wholesomeness of the poultry and assure that the products are not adulterated. A description of the chilling and freezing procedures used at the official establishment shall be filed with the inspector in charge at the establishment.

(b) *General chilling requirements*. (1) All poultry that is slaughtered and eviscerated in the official establishment shall be chilled immediately after processing so that the internal temperature is reduced to 40 °F. or less, as provided in paragraph (b)(2) of this section unless such poultry is to be frozen or cooked immediately at the official establishment. Eviscerated poultry to be shipped from the establishment in packaged form shall be maintained at 40 °F. or less, except that during further processing and packaging operations, the internal temperature may rise to a maximum of 55 °F.: *Provided*, That immediately after packaging, the poultry is placed under refrigeration at a temperature that will promptly lower the internal temperature of the product to 40 °F. or less, or the poultry is placed in a freezer. Poultry which is to be held at the plant in packaged form in excess of 24 hours shall be held in a room at a temperature of 36 °F. or less.

(2) Major portions of poultry carcasses, as defined in § 381.170(b)(22), and poultry carcasses shall be chilled to 40° F. or lower within the following specified times:

Weight of carcass	Time (hours)
Under 4 pounds	4
4 to 8 pounds	6
Over 8 pounds	8

(c) *Ice and water chilling.* (1) Only ice produced from potable water may be used for ice and water chilling. The ice shall be handled and stored in a sanitary manner. If of block type, the ice shall be washed by spraying all surfaces with clean water before crushing.

(2)(i) The temperature of the chilling media in the warmest part of any poultry chilling system shall not exceed 65 °F. or the maximum temperature specified in the current chilling procedure filed as required by paragraph (a) of this section, whichever is less. Continuous chillers shall not be used unless a recording thermometer, with a 24-hour recording cycle, is provided to measure the temperature in the warmest part of the chilling system. The temperature recorder shall be readily accessible. The completed temperature charts shall be furnished daily to the inspector.

(ii) With respect to continuous chilling systems, the fresh water intake in the first section of the system, after all sections of the system are filled with water, shall be not less than one-half gallon per frying chicken and proportionately more for other classes of poultry, including not less than 1 gallon per turkey. Sufficient water or ice, or both, shall be added to sections of the chilling system other than the first section, to keep the chilling media clean and to provide a continuous overflow from each section. If there is no loss of water between sections, multiple section chilling systems may be connected so the overflow from subsequent sections serves as water intake for the first section. In this type of installation, the required minimum fresh water intake may be either in the first or the last section of the chilling system. Water used to fill chilling systems shall not be counted toward minimum requirements specified in this paragraph (c)(2)(ii). Continuous chillers shall not be used unless the required minimum fresh water intake is measured through a meter which gives cumulative readings, and the meter shall be readily accessible. Upon approval by the Administrator in specific cases, when the official establishment employs an acceptable method of determining the amount of ice added to the appropriate section of the

chilling system, meltage from such ice may be counted toward the required minimum fresh water intake.

(iii) In continuous chillers, whenever the elevators or conveyors removing the poultry from the chilling units are stopped, the agitation, either mechanical or by air, must also be stopped. In addition, unless the temperature of the chilling media is lowered to and maintained at 40 °F. or below, poultry shall not be left in such stopped chillers in excess of 15 minutes.

(iv) Major portions of poultry carcasses, as defined in §381.170(b)(22), may be chilled in water and ice, including chilling in continuous chillers. Individual parts, including but not limited to drumsticks, thighs, split halves, and split breasts, shall not be cooled in water and ice, but may be cooled in the air, or ice, or under a spray of water with continuous drainage.

(v) Previously chilled poultry carcasses and major portions shall not be rechilled in ice and water, but may be rechilled with ice in continuously drained containers.

(vi) Any owner or operator of an official establishment desiring to utilize a chilling system which includes water reconditioning may, by submitting the information and data specified in paragraphs (c)(2)(vi) (A) and (B) of this section, request the Administrator to evaluate the efficacy of the water reconditioning system to determine whether a reduction in fresh water intake requirements will be permitted: *Provided*, That the equipment related to the systems has been approved under §381.53 of subpart H of this subchapter, that operation of the system results in full compliance with the Act and this subchapter, and that the system permits effective and efficient monitoring. The Administrator shall approve requests in accordance with the following standard:

Minimum Percent reduction of micro-organisms in treated water	Minimum Percent light transmission in treated water	Gallons of reconditioned water to replace one gallon of fresh water
60	60	1.75
70	70	1.50
80	80	1.35
90	80	1.25
98	80	1.10

Requests for approval must include:

(A) Information specifying the equipment, as approved under §381.53, materials, and conditions of use incident to the system. Items which must be so specified include filters; rate of flow; pressures and/or vacuums required for suitable operation; point of exit from the chilling units of water to be reconditioned; point of entry into the chilling units of the reconditioned water; frequency of filter changes, back-flushing, or other system restoration; post-filter treatment; and any other condition the alteration of which could affect the effectiveness of reconditioning; and

(B) Data demonstrating that reconditioning results in achieving and maintaining throughout the operating shift at least a 60 percent reduction in total micro-organisms, that such reduction relates within ∓ 10 percentage points to a similar reduction in any *coliforms*,¹ *Esherichia coli*² and/or *Salmonella spp.*³ that may be present; and that light transmission of the treated water is maintained throughout the operating shift at no less than 60 percent of that of the fresh water supply.

(3) Previously chilled poultry carcasses and major portions shall be maintained constantly at 40 °F. or below until removed from the vats or tanks for immediate packaging. Such products may be removed from the vats or tanks prior to being cooled to 40 °F. or below, for freezing or cooling in the official establishment. Such products

shall not be packed until after they have been chilled to 40 °F. or below, except when the packaging will be followed immediately by freezing at the official establishment.

(4)(i) In order to facilitate continuous processing operations, poultry carcasses and major parts may be held overnight in chilling tanks containing water-saturated ice, refrigerated water, or other approved cooling media that will maintain all poultry in the tanks at a temperature of 40 °F., or lower. Practices (such as reicing, recirculation of the chilling medium, or holding product in refrigerated rooms, or use of increased amounts of ice) shall be employed that will result in all of the poultry in the chilling tanks being maintained at a temperature of 40 °F. or lower throughout the holding period.

(ii) Poultry which is to be held in chilling tanks in excess of 24 hours shall at the end of the 24-hour chilling period be removed from the tanks and repacked in clean ice and in clean tanks which are continually drained, or as an alternative, the tanks shall be drained and reiced and placed in a cooler which will maintain all of the poultry in the tanks at a temperature at 40 °F. or below.

(5) GIBLETS shall be chilled to 40 °F. or lower within 2 hours from the time they are removed from the inedible viscera, except that when they are cooled with the carcass, the requirements of paragraph (b)(2) of this section shall apply. Any of the acceptable methods of chilling the poultry carcass may be followed in cooling giblets. When continuous chillers are used to chill giblets or necks, the fresh water intake in the chiller shall be not less than 1 gallon per 40 frying chickens processed, and shall be proportionately increased for other classes of poultry. When necks are chilled together with giblets, the minimum fresh water intake shall be not less than 1 gallon per 20 frying chickens processed and shall be proportionately increased for other classes of poultry. The required minimum fresh water intake in giblet and neck chillers shall be measured through a meter which gives cumulative readings, and the meter shall be readily accessible. In continuous giblet

¹Five tube most probable number (MPN) following procedures in Microbiology Laboratory Guidebook, FSIS, USDA, January 1974, Section 3.4 using 5 replicate tubes of each dilution; and computed using standard MPN tables.

²Five tube most probable number (MPN) using procedure in Microbiology Laboratory Guidebook, FSIS, USDA, January 1974, Section 3.5 using 5 replicate tubes of each dilution; and computed using standard MPN tables.

³Most probable number (MPN) per 100 ml by 3 tube MPN. To each of three 100, 10, 1, and 0.1 ml sample portions, an equal volume of double strength lactose broth containing 1.2% Tergitol 7 is added. Then determined by procedure in Microbiology Laboratory Guidebook, FSIS, USDA, January 1974, Section 4.0; and computed using standard MPN tables.

or neck chillers, the temperature of the chilling medium shall not exceed 36 °F. in the warmest part of the system.

(d) *Moisture absorption and retention limits.* (1) Poultry washing, chilling, and draining practices and procedures shall be such as will minimize moisture absorption and retention at time of packaging.

(2) With respect to ready-to-cook poultry that is to be frozen, cooked, or consumer packaged, as whole poultry, the maximum moisture absorption and retention during washing, chilling, and draining processes shall not exceed, at the last readily accessible point at which the poultry carcasses can be selected for testing prior to packaging, the percentage limits set forth in the following tables.

TABLE 1—MAXIMUM MOISTURE ABSORPTION AND RETENTION LIMITS FOR ALL CLASSES OF POULTRY, OTHER THAN TURKEYS, TO BE CONSUMER PACKAGED, FROZEN OR COOKED AS WHOLE POULTRY

Average ready-to-cook carcass weight prior to final washer (less necks and giblets)	Average percent increase in weight over weight of carcass prior to final washer (less necks and giblets)	
	Zone A ¹	Zone B ¹
Chickens 4¼ lbs. and under	8.0	8.7
Chickens over 4¼ lbs. and all other classes of poultry other than turkeys	6.0	6.7

¹ Product shall be retained if, out of five consecutive tests more than one test exceeds the Zone A limits or any test exceeds the Zone B limits. These zone limits were based on a statistical analysis of variation between individual birds with regard to moisture absorption. With these limits the chance of passing a lot with average moisture at or above the Zone A limit is less than 15 percent. A lot with average moisture at or above the Zone B limit would have virtually no chance of passing.

TABLE 2—MAXIMUM MOISTURE ABSORPTION AND RETENTION LIMITS FOR ALL TURKEYS TO BE CONSUMER PACKAGED, FROZEN OR COOKED AS WHOLE POULTRY

Average ready-to-cook carcass weight prior to final washer (less necks and giblets)	Average percent increase in weight over weight of carcass prior to final washer (less necks and giblets)	
	Zone A ¹	Zone B ¹
8 lbs. 8 ozs. and under	8.0	9.0
8 lbs. 9 ozs.—15 lbs. 15 ozs	6.0	6.4
16 lbs.—16 lbs. 15 ozs	5.8	6.05
17 lbs.—17 lbs. 15 ozs	5.5	5.75
18 lbs.—18 lbs. 15 ozs	5.3	5.55
19 lbs.—19 lbs. 15 ozs	5.1	5.35

TABLE 2—MAXIMUM MOISTURE ABSORPTION AND RETENTION LIMITS FOR ALL TURKEYS TO BE CONSUMER PACKAGED, FROZEN OR COOKED AS WHOLE POULTRY—Continued

Average ready-to-cook carcass weight prior to final washer (less necks and giblets)	Average percent increase in weight over weight of carcass prior to final washer (less necks and giblets)	
	Zone A ¹	Zone B ¹
20 lbs.—20 lbs. 15 ozs	4.9	5.15
21 lbs.—21 lbs. 15 ozs	4.8	5.05
22 lbs.—22 lbs. 15 ozs	4.6	4.85
23 lbs.—23 lbs. 15 ozs	4.5	4.75
24 lbs.—26 lbs. 15 ozs	4.4	4.65
27 lbs. and over	4.3	4.55

¹ Product shall be retained if, out of five consecutive tests more than one test exceeds the Zone A limits or any test exceeds the Zone B limits. These zone limits were based on a statistical analysis of variation between individual birds with regard to moisture absorption. With these limits the chance of passing a lot with average moisture at or above the Zone A limit is less than 15 percent. A lot with average moisture at or above the Zone B limit would have virtually no chance of passing.

(3) With respect to ready-to-cook turkey carcasses that are to be cut up, the maximum amount of moisture absorption and retention shall not exceed (at the time the first cut is made) the percentage limits set forth in the following table:

TABLE 3—MAXIMUM MOISTURE ABSORPTION AND RETENTION LIMITS FOR ALL CLASSES OF TURKEYS TO BE CUT UP

Average ready-to-cook carcass weight prior to final washer (less necks and giblets)	Average percent increase in weight over weight of carcass prior to final washer (less necks and giblets)	
	Zone A ¹	Zone B ¹
8 lbs. 8 ozs. and under	9.0	10.0
8 lbs. 9 ozs.—15 lbs. 15 ozs	7.0	7.4
16 lbs.—16 lbs. 15 ozs	6.8	7.05
17 lbs.—17 lbs. 15 ozs	6.5	6.75
18 lbs.—18 lbs. 15 ozs	6.3	6.55
19 lbs.—19 lbs. 15 ozs	6.1	6.35
20 lbs.—20 lbs. 15 ozs	5.9	6.15
21 lbs.—21 lbs. 15 ozs	5.8	6.05
22 lbs.—22 lbs. 15 ozs	5.6	5.85
23 lbs.—23 lbs. 15 ozs	5.5	5.75
24 lbs.—26 lbs. 15 ozs	5.4	5.65
27 lbs. and over	5.3	5.55

¹ Product shall be retained if, out of five consecutive tests more than one test exceeds the Zone A limits or any test exceeds the Zone B limits. These zone limits were based on a statistical analysis of variation between individual birds with regard to moisture absorption. With these limits the chance of passing a lot with average moisture at or above the Zone A limit is less than 15 percent. A lot with average moisture at or above the Zone B limit would have virtually no chance of passing.

(4)(i) With respect to ready-to-cook chicken carcasses, averaging 4¼

§ 381.66

9 CFR Ch. III (1-1-00 Edition)

pounds or less, that are chilled in continuous chillers and further aged or chilled in slush ice and water, prior to being cut up, the maximum amount of moisture absorption and retention shall not exceed (when placed on the cutup line) the percentage limits set forth in the following table:

AVERAGE PERCENT INCREASE IN WEIGHT OVER WEIGHT OF CARCASS PRIOR TO FINAL WASHER (LESS NECKS AND GIBLETS)

Zone A—10.0¹
Zone B—11.0¹

(ii) With respect to ready-to-cook chicken carcasses, averaging 4¼ pounds or less, which are chilled in continuous chillers only, prior to being cut up, the percentage limits set forth in paragraph (d)(5) of this section shall apply.

(5) With respect to ready-to-cook poultry other than that under paragraph (d) (3) or (4)(i) of this section that is to be ice packed, the maximum amount of moisture absorption shall not exceed, at the last readily accessible point at which the poultry carcasses can be selected for testing on the drip line, the percentage limits set forth in the following table:

MAXIMUM MOISTURE ABSORPTION AND RETENTION LIMITS FOR ICE PACK POULTRY

AVERAGE PERCENT INCREASE IN WEIGHT OVER WEIGHT OF CARCASS PRIOR TO FINAL WASHER (LESS NECKS AND GIBLETS)

Zone A—12.0¹
Zone B—13.0¹

(6) With respect to all ice pack poultry, the loss of moisture during holding and transportation to the first destination shall result in moisture retention that is within the limits, applicable to the class of poultry involved, set forth

¹Product shall be retained if, out of five consecutive tests, more than one test exceeds the Zone A limits or any test exceeds the Zone B limits. These zone limits were based on a statistical analysis of variation between individual birds with regard to moisture absorption. With these limits the chance of passing a lot with average moisture at or above the Zone A limit is less than 15 percent. A lot with average moisture at or above the Zone B limit would have virtually no chance of passing.

in Zone A of Tables 1 and 2 in paragraph (d)(2) of this section.

(7) Ten-bird tests shall be conducted at least daily by inspectors to assure compliance with the requirements of paragraphs (d) (1) through (5) of this section, using procedures set forth in the Poultry Inspectors' Handbook. The inspectors' 10-bird test will be used to determine such compliance, except as additional 50-bird tests are required under paragraph (d)(8) of this section.

(8) Each official establishment may make adjustments in its washing, chilling, and draining methods provided it submits to the inspector at the establishment, written notice of the proposed adjustments before any changes are made, and provided further, that the operator of the establishment, immediately after the change, selects, prepares, identifies, and weighs, in accordance with procedures set forth in the Poultry Inspectors' Handbook,² individually a random sample of 50 ready-to-cook poultry carcasses prior to the final washer and again when they are removed from the drip line or other draining device immediately before packing. If the average weight of the 50 poultry carcasses taken before the final washer and their average weight after immediate removal from the drip line or draining device show that the product is in compliance with the Zone A moisture absorption limits, applicable to the class of poultry involved, set forth in this section, the adjusted methods will become the established washing, chilling, and draining system for the establishment. If the results of the weighing of the sample of 50 carcasses show that the product exceeds the Zone A limits set forth in this section, the poultry will be retained in accordance with procedures set forth in the Poultry Inspectors' Handbook. Retained poultry shall not be released from the establishment until they meet the applicable requirements of paragraph (d) (2), (3), (4), or (5) of this section.

(9) The establishment shall provide scales, weights, identification devices,

²The Poultry Inspectors' Handbook is available upon request from the Food Safety and Inspection Service of the U.S. Department of Agriculture, Washington, DC 20250.

and other supplies necessary to conduct all moisture tests.

(10) When poultry is ice packed in barrels or other containers, the barrels and containers shall be covered and shall have an adequate number of drain holes to permit the water to drain out. However, the Administrator, upon written request and under such conditions as he may prescribe in specific cases, may approve the shipment of poultry in operational type containers, such as chill tanks or lugs, from one official establishment to another official establishment for further processing.

(11)(i) Giblets shall be handled in a manner that will prevent free water from being included in the giblet package. If giblet wrapping material is to be used, the average weight of giblet wrapping material shall be not more than 30 pounds per standard ream (24" x 36"—500 sheets) when tested in accordance with the Technical Association of the Pulp and Paper Industry (T.A.P.P.I.) Standard T-410, except that the weight of such material may exceed 30 pounds per standard ream if, after absorption, as allowed by paragraph (d)(11)(ii) of this section, the material does not weigh more than the total of a 30-pound standard ream plus the allowable absorption increase.

(ii) Test samples shall be conditioned in accordance with T.A.P.P.I. Standard T-402. The sample to be tested shall consist of 10 sheets representative of the shipment or lot, and individual sheets within the sample may vary within normal tolerance from the prescribed maximum weight, but the average of the sample (10 sheets) shall not weigh in excess of 30 pounds per standard ream (24" x 36"—500 sheets) except as specified above. The moisture absorption shall not exceed 200 percent of the dry weight of the sample (as conditions in accordance with T.A.P.P.I. Standard T-402) and giblet wrappers (uncreped) shall not exceed the following sizes or equivalents: Chickens and Ducks, 9" x 12", Turkeys, 12" x 14".

(e) *Air chilling.* In air chilling ready-to-cook poultry, the internal temperature of the carcasses shall be reduced to 40 °F. or less within 16 hours.

(f) *Freezing.* (1) Ready-to-cook poultry which is to be or is labeled with descriptive terms such as "fresh frozen,"

"quick frozen" or "frozen fresh" or any other term implying a rapid change from a fresh state to a frozen state shall be placed into a freezer within 48 hours after initial chilling in accordance with paragraph (b) of this section. During this period, if such poultry is not immediately placed into a freezer after chilling and packaging, it shall be held at 36 °F. or lower.

(2) Ready-to-cook poultry shall be frozen in a manner so as to bring the internal temperature of the birds at the center of the package to 0 °F. or below within 72 hours from the time of entering the freezer. Such procedures shall not apply to raw poultry product described in § 381.129(b)(6)(i) of this subchapter.

(3) Upon written request, and under such conditions as may be prescribed by the Administrator, in specific cases, ready-to-cook poultry which is to be frozen immediately may be moved from the official establishment prior to freezing; *Provided*, That the plant and freezer are so located and such necessary arrangements are made that the Inspection Service will have access to the freezing room and adequate opportunity to determine compliance with the time and temperature requirements specified in paragraph (f)(2) of this section.

(4) Warm packaged ready-to-cook poultry which is to be chilled by immediate entry into a freezer within the official establishment shall within 2 hours from time of slaughter be placed in a plate freezer or a freezer with a functioning circulating air system where a temperature of -10 °F. or lower is maintained.

(5) Frozen poultry shall be held under conditions which will maintain the product in a solidly frozen state with temperature maintained as constant as possible under good commercial practice.

(6) Immersion or spray freezing equipment shall be constructed of non-corrosive metal or other acceptable material. Compounds used in immersion or spray freezing procedures shall be approved by the Administrator.

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