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United States Standards for Grades of Canned Onions

Effective January 20, 2017

This issue of the United States Standards for Grades of Canned Onions (81 FR 93572) supersedes the previous issue which has been in effect since November 2, 1957.

Voluntary U.S. grade standards are issued under the authority of the Agricultural Marketing Act of 1946, which provides for the development of official U.S. grades to designate different levels of quality. These grade standards are available for use by producers, suppliers, buyers, and consumers. As in the case of other standards for grades of fresh and processed fruits, vegetables, and specialty crops these standards are designed to facilitate orderly marketing by providing a convenient basis for buying and selling, for establishing quality control programs, and for determining loan values.

The U.S. grade standards and inspection instructions for all fresh and processed fruits, vegetables, and specialty crops are available on the internet and upon request at the address below. These documents provide detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the U.S. Department of Agriculture (USDA) after careful consideration of all data and views submitted during rulemaking. The Department welcomes suggestions for improving the standards in future revisions. Comments may be submitted to, and copies of standards and inspection instructions obtained from:

Director, Specialty Crops Inspection Division
Specialty Crops Program,
USDA, Agricultural Marketing Service
1400 Independence Avenue, SW, STOP 0240
Washington, D.C. 20250

Authority: 7 U.S.C. 1621-1627.

Note: Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or with applicable State laws and regulations.

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Product Description and Grades
§52.3041 Product description.

Canned onions means the canned product consisting of whole onions, properly prepared from clean, sound, succulent onion bulbs. The product is prepared and processed in accordance with good commercial practice and is sufficiently processed by heat to assure preservation of the product in hermetically sealed containers as defined in the standard of identity for Certain Other Canned Vegetables (21 CFR 155.200) issued as pursuant to the Federal Food, Drug, and Cosmetic Act.

§52.3042 Grades of canned onions.

- (a) **U.S. Grade A** is the quality of canned onions that possess similar varietal characteristics; that possess a normal flavor; that possess a good color; that are practically uniform in size and shape; that are practically free from defects; that possess a good character; and that score not less than 85 points when scored in accordance with the scoring system outlined in this subpart.
- (b) **U.S. Grade C** is the quality of canned onions that possess similar varietal characteristics; that possess a normal flavor; that possess a fairly good color; that are fairly uniform in size and shape; that are fairly free from defects; that possess a good character; and that score not less than 70 points when scored in accordance with the scoring system outlined in this subpart: Provided, that the canned onions may be variable in size and shape if the total score is not less than 70 points.
- (c) **Substandard** is the quality of canned onions that fail to meet the requirements of U.S. Grade C.

Recommended Fill of Container, Drained Weight, and Count of Canned Onions
§52.3043 Fill of container.

The recommended fill of container is not incorporated in the grades of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that each container be filled as full as possible with onions without impairment of quality and the product and packing medium occupy not less than 90 percent of the total capacity of the container.

§52.3044 Drained weights.

- (a) **General.** The minimum drained weight recommendations for canned onions in Table I of this section are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purpose of these grades.

- (b) **Method for ascertaining drained weight.** The drained weight is determined by emptying the contents of the container upon a United States Standard No. 8 sieve of proper diameter so as to distribute the product evenly, inclining the sieve to facilitate drainage, allowing the product to drain for two minutes and then weighing the sieve together with the product thereon. The drained weight is the weight of the sieve and the drained product less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No.3 size can (404 x 414) or equivalent size, and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the equivalent of the No. 3 size can.
- (c) **Compliance with recommended drained weights.** Compliance with the recommended drained weights is determined by averaging the drained weights from all the containers which are representative of a specific lot; and such lot is considered as meeting the recommendations if the following criteria are met.
- (1) The average of the drained weights from all of the containers meets the applicable recommended drained weight;
 - (2) One-half or more of the containers meets the recommended drained weight; and
 - (3) The drained weight of each of the containers which do not meet the recommended drained weight is within the range of variability for good commercial practice.

Table I – Recommended Drained Weights, in Ounces, for Canned Onions

Container size or designation (metal, unless otherwise stated)	Maximum headspace allowable (measured from top of double seam)	Sizes of canned onions		
		Tiny	Small	Medium
	16th of an inch	Ounces	Ounces	Ounces
8 ounce tall	7.6	4.5	4.5	4.5
No. 303	9.4	9.5	9	9
No. 303 glass	9.4	9	9	9
No. 10	13.6	64	63	60

§52.3045 Count of onions.

- (a) **General.** The count recommendations in Table II of this section are not incorporated in the finished product since count of onions, as such, is not a factor of quality for the purpose if these grades.

(b) Compliance with recommended count of onions. Compliance with recommended count of canned onions is determined by averaging the counts from all the containers which are representative of a specific lot; and such lot is considered as meeting the recommendations if the following criteria are met:

- (1) The average of the counts from all of the containers is within the range of the applicable recommended count;
- (2) The counts of not more than one-sixth of the containers fail the range of such recommended count; and
- (3) The count from each of the containers which fails such range is not outside such range by more than 10 percent or more than two onion bulbs, whichever is the greater.

Table II – Recommended Count for Canned Onions

Container size or designation (metal, unless otherwise stated)	Tiny	Small	Medium
8 ounce tall	15 and over	8 to 14, inclusive	--
No. 303 and No. 303 glass	30 and over	15 to 29, inclusive	8 to 14, inclusive
No. 10	200 and over	100 to 199, inclusive	80 to 99, inclusive

Factors of Quality

§52.3046 Ascertaining the grade.

(a) General. In addition to considering other requirements outlined in the standards the following quality factors are evaluated:

(1) Factors which are not scored.

- (i) Varietal characteristics.
- (ii) Flavor.

(2) Factors which are scored. The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given such factors are:

Factors	Points
Color	20
Uniformity of size and shape	30
Defects	30
Character	20
Total score	100

- (b) **Normal flavor.** Normal flavor means that the product is free from objectionable flavors and objectionable odors of any kind.

§52.3047 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive. (For example, 17 to 20 points means 17, 18, 19, or 20 points).

§52.3048 Color.

- (a) **General.** The color of canned onions has reference to the predominating and characteristic color of the exterior surfaces of the onion bulbs.

- (b) **“A” classification.** Canned onions that possess a good color may be given a score of 17 to 20 points.

Good color means that the canned onions possess a reasonably bright, characteristic color which may include typical greenish areas on the surface of the bulbs; and that not more than 10 percent, by count, of the onions may individually possess such typical greenish areas, which in the aggregate, exceed one - half of the surface area of the bulb.

- (c) **“C” classification.** If the canned onions possess a fairly good color, a score of 14 to 16 points may be given. Canned onions that fall into this classification shall not be grade above U. S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good color means that the canned onions possess a characteristic color which may include typical greenish areas in the surface of the bulbs; that the product is not materially affected by oxidation, or dull grayish-white casts, or water-white casts, or other discoloration; and that not more than 20 percent, by count, of the onions may individually possess greenish areas, which, in the aggregate, exceed one-half of the surface area of the bulbs.

- (d) **“SStd” Classification.** Canned onions that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.3049 Uniformity of size and shape.

- (a) **General.** Uniformity of size and shape refers to the degree of variation in size and shape of the individual onion bulbs in canned onions.
- (1) **Poorly shaped** means that the length of the individual onion bulb exceeds the maximum length for the applicable diameter, as shown in Table III of this section, or that the onion bulb is otherwise misshapen to the extent that its appearance is seriously affected.

Table III – Recommended Diameter and Maximum Length of Onions

Diameter of onion ¹	Maximum length of onion (inches) ²
1/2 inch	15/16
9/16 inch	1-1/16
5/8 inch	1-3/16
11/16 inch	1-5/16
3/4 inch	1-7/16
13/16 inch	1-9/16
7/8 inch	1-11/16
15/16 inch	1-13/16
1 inch	1-15/16
1-1/8 inch	2-1/8
1-1/4 inch	2-3/8
1-3/8 inch	2-5/8
1-1/2 inch	2-7/8

¹Diameter is determined by measuring the greatest diameter at right angles to a straight line running from the stem end to the root end.

²Length is determined by measuring the over-all length of the onion.

- (b) **“A” classification.** Canned onions that are practically uniform in size or shape may be given a score of 26 to 30 points.

Practically uniform in size and shape means that:

- (1) In a container with a count of less than 21 onions, not more than 10 percent, by count, of the onions are poorly shaped, and the weight of the second largest onion is not more than three times the weight of the second smallest onion.
- (2) In a container of a count of 21 or more onions, not more than 10 percent, by count, of the onions are poorly shaped, and with respect to 95 percent, by count, of all the onions, the weight of the largest onion is not more than three times the weight of the smallest onion.

- (c) **“C” classification.** If the canned onions are fairly uniform in size and shape, a score of 21 to 25 points may be given. Canned onions that fall into this classification shall not be graded above U. S. Grade C, regardless of the total score for the product (this is a limiting rule).

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Fairly uniform in size and shape means that:

- (1) In a container with a count of less than 21 onions, not more than 25 percent, by count, of the onions are poorly shaped, and the weight of the second largest onion is not more than four times the weight of the second smallest onion.
 - (2) In a container with a count of 21 or more onions, not more than 25 percent, by count, of the onions are poorly shaped, and with respect to 95 percent, by count, of all the onions, the weight of the largest onion is not more than four times the weight of the smallest onion.
- (d) **“SStd” classification.** Canned onions that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 20 points and shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a partial limiting rule).

§52.3050 Defects.

- (a) **General.** The factor of defects refers to the degree of freedom from extraneous vegetable material and from onion bulbs that are blemished or seriously blemished or affected by mechanical damage, loose scales, or detached centers, and to the trimming of the onion bulb.
- (1) **Blemished** means affected by surface or internal discoloration to such an extent that the appearance or eating quality is materially affected. Internal yellow sprouts which show no discoloration are not considered as being within the meaning of the term blemished.
 - (2) **Seriously blemished** means blemished to such an extent that the appearance or eating quality is seriously affected.
 - (3) **Mechanical damage** means damaged by crushing, gouging, or trimming to such an extent that the appearance of the onion bulb is materially affected.
 - (4) **Loose scales or pieces of scales** mean scales or pieces of scales that are not attached to an onion bulb.
 - (5) **Detached center** means an onion bulb without its center portion.
 - (6) **Well trimmed** means that the top and roots of the onion bulb have been removed.

(b) “A” classification.

- (1) Canned onions that are practically free from defects may be given a score of 25 to 30 points.

Practically free from defects means:

- (i) With respect to the onions in all of the containers
 - (a) At least 95 percent, by count of the onions, are well trimmed, and
 - (b) For each 20 onions, there may be present not more than two loose scales or pieces of scales and one detached center; and
 - (ii) With respect to the onions in the individual containers
 - (a) Not more than a total of 10 percent, by count of the onions in the container, are affected by mechanical damage, and
 - (b) Not more than three percent , by count of the onions in such container, are blemished, including not more than one percent, by count of the onions in such container, that are seriously blemished.
- (2) Notwithstanding the requirements in subparagraph (1) (ii) of this paragraph, one onion bulb in an individual container may be affected by one or more of the defects listed therein, although in excess of the percentages permitted for the particular defects: *Provided*, That the percentage of each such defect computed on the basis of all of the onions in all containers is within the percentage permitted for such defect.

(c) “C” classification.

Canned onions that are fairly free from defects may be given a score of 21 to 24 points. Canned onions that fall into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly free from defects means:

- (1) With respect to the onions in all of the containers
 - (i) At least 90 percent, by count of the onions, are well trimmed, and
 - (ii) For each 20 onions, there may be present not more than four loose

scales or pieces of scales and two detached centers, and

- (iii) With respect to the onions in the individual containers
 - (a) Not more than a total of 20 percent, by count of the onions in the container, are affected by mechanical damage, and
 - (b) Not more than 5 percent, by count of the onions in such container, are blemished, including not more than 2 percent, by count of the onions in such container, that are seriously blemished.
- (2) Notwithstanding the requirements in subparagraph (1) (ii) of this paragraph, one onion bulb in an individual container may be affected by one or more of the defects listed therein, although in excess of the percentages permitted for the particular defects: *Provided*, That the percentage of each such defect computed on the basis of all of the onions in all containers is within the percentage permitted for such defect.
- (d) **“SStd” classification.** Canned onions that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 20 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.3051 Character.

- (a) **General.** Character has reference to firmness and texture of the individual onion, and to the tendency to retain its conformation without becoming soft or spongy.
- (b) **“A” classification.** Canned onions that possess a good character may be given a score of 17 to 20 points.

Good character means that the onions are reasonably firm, reasonably tender, and not more than 10 percent, by count, are soft and spongy.

- (c) **“C” classification.** Canned onions that possess a fairly good character may be given a score of 14 to 16 points. Canned onions that fall into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good character means that the onions are fairly firm, fairly tender, and not more than 20 percent, by count, are soft or spongy.

- (d) **“SStd” classification.** Canned onions that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 13 points and shall not

be graded above the Substandard, regardless of the total score for the product (this is a limiting rule).

Lot Inspection and Certification

§52.3052 Ascertaining the grade of a lot.

The grade of a lot of canned onions covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (7 CFR 52.1 through 52.83; 22 F.R. 3535).

Score Sheet
§52.3053 Score sheet for canned onions.

Number, size, and kind of container			
Container marks or identification			
Label			
Net weight (ounces)			
Vacuum (inches)			
Drained weight (ounces)			
Count (whole)			
Varietal Type			
Factors		Grade	Score Points
Color	20	"A"	17-20
		"C"	14-16 ¹
		"SStd"	0-13 ¹
Uniformity of size and shape	30	"A"	26-30
		"C"	21-25 ¹
		"SStd"	0-20 ²
Defects	30	"A"	25-30
		"C"	21-24 ¹
		"SStd"	0-20 ¹
Character	20	"A"	17-20
		"C"	14-16 ¹
		"SStd"	0-13 ¹
Total Score		100	
Flavor and odor			
U.S. Grade			

¹Indicates limiting rule.

²Indicates partial limiting rule