



**United States  
Department of  
Agriculture**

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Division

Processed  
Products  
Branch

# **United States Standards for Grades of Canned Apples**

Effective October 17, 1953

This is the fourth issue of the United States Standards for Grades of Canned Apples published in the **FEDERAL REGISTER** of September 16, 1953 (18 FR 5525) to become effective October 17, 1953. This issue supersedes the third issue, which has been in effect since November 1, 1943.

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 processed fruits and vegetables, 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 standards also serve as a basis for the inspection and grading of commodities by the Federal inspection service, the only activity authorized to approve the designation of U.S. grades as referenced in the standards, as provided under the Agricultural Marketing Act of 1946. This service, available as on-line (in-plant) or lot inspection and grading of all processed fruit and vegetable products, is offered to interested parties, upon application, on a fee-for-service basis. The verification of some specific recommendations, requirements, or tolerances contained in the standards can be accomplished only by the use of on-line inspection procedures. In all instances, a grade can be assigned based on final product factors or characteristics.

In addition to the U.S. grade standards, grading manuals or instructions for inspection of several processed fruits and vegetables are available upon request for a nominal fee. These manuals or instructions contain detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the Department after careful consideration of all data and views submitted, and the Department welcomes suggestions which might aid in improving the standards in future revisions. Comments may be submitted to, and copies of standards and grading manuals obtained from:

Chief, Processed Products Branch  
Fruit and Vegetable Division, AMS  
U.S. Department of Agriculture  
P.O. Box 96456, Rm. 0709, So. Bldg.  
Washington, D.C. 20090-6456

UNITED STATES STANDARDS FOR GRADES OF  
CANNED APPLES

EFFECTIVE OCTOBER 17, 1953

Sec.		Page No.
52.2161	Product description.	2
52.2162	Styles of canned apples.	2
52.2163	Grades of canned apples.	2
52.2164	Recommended fill of container.	2
52.2165	Recommended minimum drained weights.	3
52.2166	Ascertaining the grade.	4
52.2167	Ascertaining the rating for the factors which are scored.	4
52.2168	Color.	4
52.2169	Uniformity of size.	5
52.2170	Absence of defects.	5
52.2171	Character.	7
52.2172	Ascertaining the grade of a lot.	7
52.2173	Score sheet for canned apples.	8

Authority: Agricultural Marketing Act of 1946, Sec. 203, 205, 60 Stat. 1087, as amended; 7 U.S.C. 1622, 1624.

---

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.

**§52.2161 Product description.**

Canned apples is the product prepared from sound, fresh apples of proper maturity and proper ripeness, which fruit is packed with or without any of the following ingredients: Water, salt, spices, nutritive sweetening ingredients, and any other ingredients permissible under the provision of the Federal Food, Drug and Cosmetic Act, and is sufficiently processed by heat to assure preservation of the product in hermetically sealed containers.

**§52.2162 Styles of canned apples.**

**Sliced** means canned apples consisting of segments of apples cut longitudinally and radially from the core axis.

**§52.2163 Grades of canned apples.**

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

**§52.2164 Recommended 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 purposes of these grades. It is recommended that each container be filled with apples as full as practicable without impairment of quality and that the product and packing medium occupy not less than 90 percent of the volume of the container.

**§52.2165 Recommended minimum drained weights.**

- (a) Minimum drained weight recommendations for canned apples shown in Table I of this paragraph are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purposes of these grades. The drained weight of canned apples is determined by emptying the contents of the container upon a United States Standard No. 8 circular sieve of proper diameter containing 8 meshes to the inch (0.0937-inch,  $\pm 3\%$  square openings) so as to distribute the product evenly, inclining the sieve slightly to facilitate drainage, and allowing to drain for two minutes. The drained weight is the weight of the sieve and the apples less the weight of the dry sieve. A sieve of 8 inches in diameter is used for No. 3 size cans (404 x 414) and smaller, and a sieve 12 inches in diameter is used for containers larger than the No. 3 size can.

TABLE I - RECOMMENDED MINIMUM DRAINED WEIGHTS

Can size	Can dimensions (in inches)		Drained weight (in ounces)
	Diameter	Height	
No. 303	3-3/16	4- 6/16	14
No. 2	3-7/16	4- 9/16	18
No. 2-1/2	4-1/16	4-11/16	26
No. 10	6-3/16	7	96

- (b) Compliance with the recommended drained weights for canned apples 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 recommendation if:
- (1) The average drained weight from all the containers meets the recommended drained weight;
  - (2) One half or more of the containers meet the recommended drained weight; and
  - (3) The drained weights from the containers which do not meet the recommended drained weights are within the range of variability for good commercial practice.

**§52.2166    Ascertaining the grade.**

- (a) The grade of canned apples is ascertained by considering the requirements with respect to varietal characteristics, flavor, and odor, which are not scored and the factors of color, uniformity of size, absence of defects, and character which are scored.
- (b) 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 .....	20
Absence of defects .....	20
Character .....	<u>40</u>
Total score .....	100

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

**§52.2167    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 such factors 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).

**§52.2168    Color.**

- (a) **"A" classification.** Canned apples that possess a good color may be given a score of 17 to 20 points. **Good color** means that the slices, internally and externally, possess a reasonably uniform bright color, characteristic of apples of similar varieties.
- (b) **"C" classification.** If the canned apples possess a fairly good color, a score of 14 to 16 points may be given. Canned apples that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly good color** means that the slices possess a color characteristic of apples of similar varieties; may vary noticeably in color; may possess a slight, but not markedly, brown, pink, or grey cast; and are practically free from internal discoloration.

- (c) **"SStd" classification.** Canned apples that fail to meet the requirements of paragraph (b) 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).

**§52.2169 Uniformity of size.**

- (a) **General.** The factor of uniformity of size refers to the degree of wholeness and to the uniformity of thickness of the slices.
  - (1) **Practically whole slice** means that the individual slice may be cut or broken but at least three-fourths of the apparent original slice remains.
- (b) **"A" classification.** Canned apples that are practically uniform in size may be given a score of 17 to 20 points. **Practically uniform in size** means that at least 90 percent of the drained weight of the product consists of whole or practically whole slices of 1-1/4 inches in length or longer; and that of the 90 percent of the drained weight of the product consisting of units of the most uniform thickness, the thickness of the slices does not vary more than 1/4 inch.
- (c) **"C" classification.** Canned apples that are fairly uniform in size may be given a score of 14 to 16 points. **Fairly uniform in size** means that at least 75 percent of the drained weight of the product consists of whole or practically whole slices of 1-1/4 inches in length or longer.
- (d) **"SStd" classification.** Canned apples 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).

**§52.2170 Absence of defects.**

- (a) **General.** The factor of absence of defects refers to the degree of freedom from harmless extraneous matter, from damaged or seriously damaged slices, and from carpel tissue.
  - (1) **Harmless extraneous matter** means any vegetable substance (including, but not being limited to, a leaf, stem, or portions thereof, cores and portions of cores, and seeds) that is harmless.

- (2) **Damaged unit** means any unit possessing green peel that exceeds in the aggregate an area of a circle 1/2 inch in diameter, or red peel that exceeds in the aggregate an area of a circle 1/4 inch in diameter, light brown bruise that exceeds the area of a circle 1/2 inch in diameter or which is more than 1/4 inch deep, and any unit in which the appearance or eating quality is materially affected by blossom end material, dark brown bruise or other internal or external discoloration, pathological injury, insect injury, or by any other means.
- (3) **Seriously damaged unit** means any unit damaged to such an extent that the appearance or eating quality is seriously affected.
- (4) **Practically free from carpel tissue** means that for each 16 ounces of the product, the carpel tissue present does not exceed in the aggregate an area equal to 3/4 square inch.
- (5) **Fairly free from carpel tissue** means that for each 16 ounces of the product, the carpel tissue present does not exceed an area equal to 1-1/2 square inches.
- (b) **"A" classification.** Canned apples that are practically free from defects may be given a score of 17 to 20 points. **Practically free from defects** means that extraneous matter may be present that does not materially affect the appearance or eating quality of the product; that the product is practically free from carpel tissue; and that not more than a total of 5 percent, by weight, of the units may be damaged of which not more than 1 percent, by weight, of all the units may be seriously damaged: **Provided**, that extraneous matter, damaged and seriously damaged units, singly or in combination, do not materially affect the appearance or eating quality of the product.
- (c) **"C" classification.** Canned apples that are fairly free from defects may be given a score of 14 to 16 points. Canned apples that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly free from defects** means that extraneous matter may be present that does not seriously affect the appearance or eating quality of the product; that the product is fairly free from carpel tissue; and that not more than a total of 15 percent, by weight, of the units may be damaged of which not more than 3 percent, by weight, of all the units may be seriously damaged: **Provided**, that extraneous matter, damaged and seriously damaged units, singly or in combination, do not seriously affect the appearance or eating quality of the product.

- (d) **"SStd" classification.** Canned apples 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).

**§52.2171 Character.**

- (a) **General.** The factor of character refers to the texture of the slices and to the tendency to retain their conformation without material softening or disintegration.
  - (1) **Mushy apples** means slices or portions thereof that are a pulpy mass and of a consistency approximating applesauce.
- (b) **"A" classification.** Canned apples that possess a good character may be given a score of 34 to 40 points. **Good character** means that the slices possess a reasonably tender texture, and that not more than 5 percent of the drained weight of the product consists of mushy apples.
- (c) **"C" classification.** Canned apples that possess a fairly good character may be given a score of 28 to 33 points. Canned apples that fall into this classification shall not be graded above U.S. Grade C or U.S. Standard, regardless of the total score for the product (this is a limiting rule). **Fairly good character** means that the slices may be variable in texture, with not more than 15 percent of the drained weight of the product consisting of slices that are markedly hard, markedly soft, or mushy.
- (d) **"SStd" classification.** Canned apples that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

**§52.2172 Ascertaining the grade of a lot.**

The grade of a lot of canned apples, covered by these standards is determined by the procedures found in the "Regulations Governing Inspection and Certification of Processed Fruits and Vegetables and Related Products" (7 CFR 52.1 through 52.83).

**§52.2173 Score sheet for canned apples.**

Size and kind of container .....			
Container mark or identification .....			
Label .....			
Net weight (ounces) .....			
Vacuum readings (in inches) .....			
Drained weight (ounces) .....			
Factors		Score Points	
I. Color	20	"A" 17 - 20	"C" 14 - 16 <u>1/</u>
		"SStd"	0 - 13 <u>1/</u>
II. Uniformity of size	20	"A" 17 - 20	"C" 14 - 16
		"SStd"	0 - 13 <u>1/</u>
III. Absence of defects	20	"A" 17 - 20	"C" 14 - 16 <u>1/</u>
		"SStd"	0 - 13 <u>1/</u>
IV. Character of fruit	<u>40</u>	"A" 34 - 40	"C" 28 - 33 <u>1/</u>
Total Score	100	"SStd"	0 - 27 <u>1/</u>
Normal flavor and odor .....			
U.S. Grade .....			

1/ Indicates limiting rule.

Recodified in the Federal Register of December 9, 1953 (18 FR 8073) -- Section 52.2172 amended May 22, 1957 (22 FR 3535).