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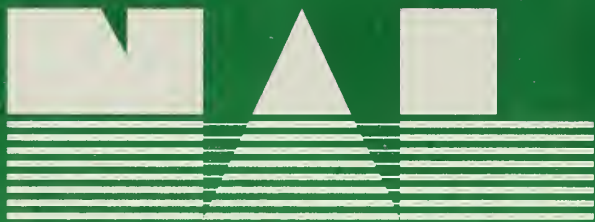
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**UNITED STATES  
STANDARDS**

*for grades of*

**CANNED TOMATOES**



**EFFECTIVE JULY 24, 1964**

**Seventh Issue**

These standards supersede the standards  
which have been in effect since  
August 1, 1946

1970

This is the seventh issue of the United States Standards for Grades of Canned Tomatoes. They were issued by the Department after careful consideration of all data and views submitted.

These standards were published in the Federal Register of June 23, 1964 (29 F.R. 7909), to become effective on July 24, 1964. An unofficial reprint of the Food and Drug Definitions and Standards for Canned Tomatoes (21 CFR Part 53), revised January 1, 1964, is included.

As is the case of other standards for processed fruits and vegetables, these standards are designed to serve as a convenient basis for sales, for establishing quality control programs, and for determining loan values. They will also serve as a basis for the inspection of this commodity by Federal inspection service, which is available for the inspection of other processed products as well.

The Department welcomes suggestions which might aid in improving these standards in future revisions. Comments may be submitted to, and copies of these standards obtained from:

Chief, Processed Products Standardization and Inspection Branch  
Fruit and Vegetable Division, C&MS  
U.S. Department of Agriculture  
Washington, D. C. 20250

Reprinted, December 1970  
(Without Food and Drug Standards attached)

# UNITED STATES STANDARDS FOR GRADES OF CANNED TOMATOES<sup>1</sup>

Effective July 24, 1964

## PRODUCT DESCRIPTION AND GRADES

Sec.

- 52.5161 Product description.  
52.5162 Grades of canned tomatoes.

### FILL OF CONTAINER

- 52.5163 Fill of container.

### FACTORS OF QUALITY

- 52.5164 Ascertaining the grade of a sample unit.  
52.5165 Ascertaining the rating for each factor which is scored.  
52.5166 Drained weight.  
52.5167 Wholeness.  
52.5168 Color.  
52.5169 Defects.

### LOT COMPLIANCE

- 52.5170 Ascertaining the grade of a lot.

### SCORE SHEET

- 52.5171 Score sheet for canned tomatoes.

**AUTHORITY:** The provisions of this subpart issued under Secs. 202-208, 60 Stat. 1087, as amended; 7 U.S.C. 1621-1627.

## PRODUCT DESCRIPTION AND GRADES

### § 52.5161 Product description.

"Canned tomatoes" means canned tomatoes as defined in the Standard of Identity for Canned Tomatoes (21 CFR 53.40) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

### § 52.5162 Grades of canned tomatoes.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of canned tomatoes that (1) have a good tomato flavor and odor; (2) have a drained weight of not less than 66 percent of the capacity of the container; (3) the drained tomatoes consist principally of whole or almost whole tomatoes; (4) have good color; (5) are practically free from defects; and (6) score not less than 90 points when scored

in accordance with the scoring system outlined in this subpart. Canned tomatoes may be of this grade if the drained weight is less than 66 percent but not less than 58 percent of the capacity of the container and/or if the drained tomato meat consists substantially of whole or almost whole tomatoes and/or large pieces: *Provided*, That the total score is not less than 90 points.

(b) "U.S. Grade A (or 'U.S. Fancy') Whole" is the quality of canned tomatoes that (1) have a good tomato flavor and odor; (2) have a drained weight of not less than 58 percent of the capacity of the container; (3) have good color; (4) are practically free from defects; (5) consist of drained tomatoes which are 95 percent, by weight, whole or almost whole; and (6) score not less than 90 points when scored in accordance with the scoring system outlined in this subpart. Canned tomatoes may be of this grade if the drained weight is less than 58 percent but not less than 50 percent of the capacity of the container: *Provided*, That the total score is not less than 90 points.

(c) "U.S. Grade B" (or "U.S. Extra Standard") is the quality of canned tomatoes that (1) have a normal tomato flavor and odor; (2) have a drained weight of not less than 58 percent of the capacity of the container; (3) the drained tomatoes consist substantially of whole, almost whole and/or large pieces; (4) have a reasonably good color; (5) are reasonably free from defects; and (6) score not less than 80 points when scored in accordance with the scoring system outlined in this subpart. Canned tomatoes of this grade may have a drained weight of less than 58 percent but not less than 50 percent of the capacity of the container: *Provided*, That the total score is not less than 80 points.

(d) "U.S. Grade C" (or "U.S. Standard") is the quality of canned tomatoes that (1) have a normal tomato flavor and

<sup>1</sup> 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.

odor; (2) have a drained weight of not less than 50 percent of the capacity of the container; (3) the drained tomatoes may consist of units of any size; (4) have a fairly good color; (5) are fairly free from defects; and (6) score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(e) Substandard is the quality of canned tomatoes that fail to meet the requirements of U.S. Grade C.

#### FILL OF CONTAINER

##### § 52.5163 Fill of container.

The standard of fill of container for canned tomatoes (21 CFR 53.42) requires that the product occupy not less than 90 percent of the water capacity of the container and indicates that canned tomatoes failing this requirement are "Below Standard in Fill."

#### FACTORS OF QUALITY

##### § 52.5164 Ascertaining the grade of a sample unit.

(a) *General.* The grade of a sample unit of canned tomatoes is ascertained by considering the factor of flavor which is not scored; the ratings for the factors of drained weight, wholeness, color, and defects, which are scored; the total score; and the limiting rules which may be applicable.

(b) *Factors rated by score points.* The relative importance of each scoring factor is expressed numerically, on the scale of 100. The maximum number of points that may be given each factor are:

<i>Factors</i>	<i>Points</i>
Drained weight.....	20
Wholeness .....	20
Color .....	30
Defects .....	30
 Total score.....	 100

##### § 52.5165 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

is inclusive. (For example: "27 to 30 points" means 27, 28, 29, or 30 points.)

##### § 52.5166 Drained weight.

(a) *Drained weight index.* The rating for the factor of drained weight is based on the drained weight index of the sample unit. Such drained weight index is determined as follows:

$$\text{Drained weight index} = \frac{\text{Weight of drained tomatoes}}{\text{Capacity of container}} \times 100 \frac{1}{/}$$

(1) *Weight of drained tomatoes.* The weight of drained tomatoes is determined by emptying the contents of the container upon a circular sieve of proper diameter containing two meshes to the inch (the wire of the screen is of uniform diameter of 0.054 inch; 0.446-inch $\pm$ 3 percent square openings) so as to distribute evenly, inclining the sieve slightly to facilitate drainage, and allowing to drain for two minutes. The weight of drained tomatoes is the weight of the sieve and tomatoes less the weight of the dry sieve. A sieve of 8 inches in diameter is used for the equivalent of No. 3 size cans (404 x 414) and smaller, and a sieve of 12 inches in diameter is used for containers larger than the equivalent of the No. 3 size can.

(2) *Capacity of container.* The capacity of the container is the weight of distilled water, at 68 degrees Fahrenheit (20 degrees Centigrade), which the sealed container will hold.

(b) *(A Whole) Classification.* If not less than 95 percent, by weight, of the drained tomatoes are whole or almost whole, a score of 16 to 20 points may be given for the respective drained weight index as indicated under the "Whole" classification in Table I of this subpart: *Provided*, That such tomatoes meet the requirements for Grade A for the factors of color and defects. (See § 52.5170 for ascertaining the grade of a lot of such tomatoes.)

(c) *(A) Classification.* If the drained weight index of the canned tomatoes is not less than 66, a score of 18 to 20 points as indicated in Table I of this subpart may be given.

(d) *(B) Classification.* If the drained weight index of the canned tomatoes is

$\frac{1}{/}$  As corrected.



less than 66, but not less than 58, a score of 16 or 17 points may be given as indicated in Table I of this subpart.

(e) (C) *Classification*. If the drained weight index of the canned tomatoes is less than 58 but not less than 50 a score of 14 or 15 points may be given as indicated in Table I of this subpart. A sample unit that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for

the product. (This is a special limiting rule.)

(f) (SStd.) *Classification*. Canned tomatoes that fail to meet the requirements of paragraph (e) 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.)

TABLE I—ALLOWABLE SCORE POINTS FOR DRAINED WEIGHT INDICES AND MINIMUM WEIGHTS OF DRAINED TOMATOES FOR COMMONLY USED CONTAINERS.

U.S. Grade classification	Score points	Drained weight index	Container sizes						
			8Z tall	Picnic	No. 303	No. 2	No. 2½	No. 3 cyl.	No. 10
			Minimum drained weight						
		<i>Index</i>	<i>Ounces</i>	<i>Ounces</i>	<i>Ounces</i>	<i>Ounces</i>	<i>Ounces</i>	<i>Ounces</i>	<i>Ounces</i>
Whole-----	20	62	5.4	6.8	10.5	12.7	18.5	32.0	67.9
	19	60	5.2	6.5	10.1	12.3	17.9	31.0	65.7
	18	58	5.0	6.3	9.8	11.9	17.3	30.0	63.5
	17	54	4.7	5.9	9.1	11.1	16.1	27.9	59.1
	16	50	4.3	5.5	8.5	10.3	14.9	25.8	54.7
A-----	20	70	6.1	7.6	11.8	14.4	20.8	36.2	76.6
	19	68	5.9	7.4	11.5	13.9	20.2	35.1	74.4
	18	66	5.7	7.2	11.1	13.5	19.6	34.1	72.2
B-----	17	62	5.4	6.8	10.5	12.7	18.5	32.0	67.9
	16	58	5.0	6.3	9.8	11.9	17.3	30.0	63.5
C-----	15	54	4.7	5.9	9.1	11.1	16.1	27.9	59.1
	14	50	4.3	5.5	8.5	10.3	14.9	25.8	54.7

(See § 52.5170 for ascertaining the grade of a lot of canned tomatoes.)

### § 52.5167 Wholeness.

(a) *General*. The factor of wholeness concerns the conformation of the tomatoes and the weight of the pieces of tomato that remain on the screen after draining as described in § 52.5166.

(b) *Definitions*. (1) "Whole or almost whole tomatoes" are tomatoes of any size that are substantially whole in that (i) the contour of the tomato is not materially affected by coring, trimming, or other means; (ii) the tomato may be cracked or split but not to the extent that there is material loss of seed or placenta (gelatinous mass filling seed cavity) or serious opening in the seed cavity; and (iii) the units may be readily restored to, and handled, in practically their original shape.

(2) "Large piece" of tomato is a piece

of tomato that weighs not less than 1½ ounces.

(3) "Drained tomatoes" means all of the tomato material that remains on the screen after draining as prescribed in § 52.5166.

(c) (A *Whole*) *Classification*. If not less than 95 percent by weight of the drained tomatoes are whole or almost whole a score of 20 points may be given.

(d) (A) *Classification*. If less than 95 percent but not less than 80 percent by weight of the drained tomatoes are whole or almost whole a score of 18 or 19 points may be given.

(e) (B) *Classification*. If not less than 70 percent by weight of the drained tomatoes consist of whole or almost whole tomatoes and/or large pieces a score of 16 or 17 points may be given.

(f) (C) *Classification.* If less than 70 percent by weight of the drained tomatoes consist of whole or almost whole tomatoes and/or large pieces a score of 14 or 15 points may be given. Canned tomatoes 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.)

#### § 52.5168 Color.

(a) *Definitions.* (1) "USDA Tomato Red" means the color of an approved plastic color comparator of this designation.

(2) "Minimum Red for Canned Tomatoes" means the equivalent of any of the colors produced by blending the combinations of the following Munsell Color discs of equal diameter when placed as indicated:

Red—Munsell 5 R 2.6/13 (glossy finish).  
 Yellow—Munsell 2.5 YR 5/12 (glossy finish).  
 Black—Munsell N 1/ (glossy finish).  
 Grey—Munsell N 4 (mat finish).

The discs are placed so that one-third of the area of the Red disc, and not more than one-third of the area of the Yellow disc, are exposed. The exposed areas of the Black and Grey discs make up the remainder of the area.

(b) *Availability of color references.* The colors referred to in this section are available from approved suppliers under license from the Agricultural Marketing Service. Information about these colors and their availability may be obtained from:

Processed Products Standardization and Inspection Branch, Fruit and Vegetable Division, U.S. Department of Agriculture, Washington, D.C., 20250.

(c) (A) and (A Whole) *Classifications.* Canned tomatoes that have a good color may be given a score of 27 to 30 points. "Good color" means a color that is typical of tomatoes of the red or reddish varieties and that of the total outer surface areas of the tomatoes: (1) Not less than 90 percent are as red as "USDA Tomato Red;" (2) not more than 5 percent may be yellow or may possess less red than Minimum Red for Canned Tomatoes; and (3) none are a distinct vivid green.

(d) (B) *Classification.* If the canned tomatoes have a reasonably good color a score of 24 to 26 points may be given. Canned tomatoes that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product. (This is a limiting rule.) "Reasonably good color" means a color that is typical of tomatoes of the red or reddish varieties, and that of the total outer surface areas of the tomatoes: (1) Not less than 50 percent are as red as "USDA Tomato Red;" (2) not more than 10 percent are yellow or are less red than "Minimum Red for Canned Tomatoes;" and (3) none are a distinct vivid green.

(e) (C) *Classification.* If the canned tomatoes possess a fairly good color, a score of 21 to 23 points may be given. Canned tomatoes 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 color" means that the red predominates to the extent that the 50 percent of the drained tomatoes which possess the least redness are as red or redder than "Minimum Red for Canned Tomatoes" as determined by the following test:

(1) Remove the drained tomatoes from the sieve after draining as described under the factor of "Drained Weight."

(2) Cut out and segregate successively those portions of tomatoes of least redness until 50 percent of the drained weight has been so segregated. Commingle the segregated portions (of least redness) to a uniform mixture without removing the seeds.

(3) Fill the mixture into a black container to a depth of at least one inch. Free the mixture from air bubbles, and skim off or press below the surface all visible seeds.

(4) Compare the color of the mixture, in full diffused daylight or its equivalent, with the "Minimum Red for Canned Tomatoes."

(f) (SStd.) *Classification.* Canned tomatoes that fail to meet the requirements of paragraph (e) of this section may be given a score of 0 to 20 points and shall not be graded above Substand-

ard, regardless of the total score for the product. (This is a limiting rule.)

### § 52.5169 Defects.

(a) *Definitions.* The factor of defects concerns the degree of freedom from tomato peel, objectionable core material, blemished areas, discolored areas, harmless extraneous materials, and other similar defects.

(1) "Objectionable core material" means tomato material associated with the core of the tomato or its attachment which detract from the appearance or edibility of the product and includes tough fibres and tough or slightly discolored tomato tissue.

(2) "Blemished areas" are abnormal areas on the tomatoes which contrast strongly in color and/or texture with the normal tomato tissue. Such areas would normally be removed in the preparation of tomatoes for culinary use.

(3) "Discolored portions" refers to imperfections of the tomato tissue which may not be of strongly contrasting color with respect to the tomato tissue but which detract slightly from the appearance of the product.

(4) "Harmless extraneous material" consists of tomato leaves, stems, calyx bracts, and similar harmless plant material.

(b) (A) and (A Whole) *Classifications.* Canned tomatoes that are practically free from defects may be given a score of 27 to 30 points. "Practically free from defects" means that: (1) Any defects present, whether or not specifically defined or listed herein, no more than slightly detract from the appearance or edibility of the product; (2) practically no objectionable core material may be present; (3) no more than a trace of harmless extraneous material may be present; and (4) the defects that may be present in the sample unit, and the entire sample if applicable, do not exceed the allowances specified in Table II of this subpart.

(c) (B) *Classification.* If the canned tomatoes are reasonably free from defects a score of 24 to 26 points may be given. Canned tomatoes that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product. (This is a

limiting rule.) "Reasonably free from defects" means that: (1) Any defects present, whether or not specifically defined or listed herein, do not materially detract from the appearance or edibility of the product; (2) only a slight amount of objectionable core material may be present; (3) no more than a slight amount of harmless extraneous material may be present; and (4) the defects that may be present in the sample unit, and the entire sample if applicable, do not exceed the allowances specified in Table II of this subpart.

(d) (C) *Classification.* If the canned tomatoes are fairly free from defects a score of 21 to 23 points may be given. Canned tomatoes 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 that: (1) Any defects present, whether or not specifically defined or listed herein, do not seriously detract from the appearance or edibility of the product; (2) only a moderate amount of objectionable core material may be present; (3) only a moderate amount of harmless extraneous material may be present; and (4) the defects that may be present in the sample unit, and the entire sample if applicable, do not exceed the allowances specified in Table II of this subpart.

(e) (SStd.) *Classification.* Canned tomatoes that fail to meet the requirements of paragraph (d) 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.)

(f) *Equivalents.* The following equivalents may be used in connection with Table II:

#### *Equivalents*

2 pounds	= 0.91 kg.
3 sq. in.	= 19.4 cm. <sup>2</sup>
2 sq. in.	= 12.9 cm. <sup>2</sup>
1 sq. in.	= 6.5 cm. <sup>2</sup>
1½ sq. in.	= 3.2 cm. <sup>2</sup>
¼ sq. in.	= 1.6 cm. <sup>2</sup>
1⅛ sq. in.	= 0.8 cm. <sup>2</sup>
1/16 sq. in.	= 0.4 cm. <sup>2</sup>

TABLE II—MAXIMUM DEFECTS PERMITTED IN EACH GRADE

Grades	Defect (aggregate area)	In a single container		In total sample representing a lot; in cans of any size (per pound of total contents of all containers (average))
		In cans of less than 2 pounds total contents (in any container)	In cans of 2 or more pounds total contents (equivalent amount per pound of contents of any container)	
A and A Whole.....	{ Peel.....	2 square inches.....	1 square inch.....	½ square inch.
	{ Blemished areas.....	½ square inch.....	¼ square inch.....	⅛ square inch.
	{ Discolored portions.....	½ square inch.....	¼ square inch.....	¼ square inch.
B.....	{ Peel.....	3 square inches.....	2 square inches.....	1 square inch.
	{ Blemished areas.....	¼ square inch.....	⅛ square inch.....	⅛ square inch.
	{ Discolored portions.....	1 square inch.....	½ square inch.....	½ square inch.
C.....	{ Peel.....	No limit.....	No limit.....	1 square inch.
	{ Blemished areas.....	½ square inch.....	¼ square inch.....	¼ square inch.
	{ Discolored portions.....	1½ square inches.....	¾ square inch.....	¾ square inch.

## LOT COMPLIANCE

## SCORE SHEET

## § 52.5170 Ascertaining the grade of a lot.

The grade of a lot of canned tomatoes 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 Products (§§ 52.1 to 52.87); except that the drained weight index of the entire sample shall limit the grade of such a lot in accordance with the following table and limiting rule:

U.S. Grade classification	Minimum drained weight index of total sample	
Grade A Whole...	58	A lot of canned tomatoes which meets the requirements for "Whole" classification but which has a drained weight index less than 58, may not be graded higher than U.S. Grade C.
Grade A.....	66	
Grade B.....	58	
Grade C.....	50	

(See § 52.5166 for minimum drained weight indices for individual sample units.)

## § 52.5171 Score sheet for Canned Tomatoes.

No., size and kind of container.....  
 Label.....  
 Container mark or identification.....  
 Net weight (ounces).....  
 Vacuum (inches).....  
 Drained weight (ounces).....  
 Flavor and odor.....

Factors	Score points	
Drained weight.....	20	{ (A) (A Whole) 18-20 (B) 16-17 (C) 14-15 (SStd.) 10-13
Wholeness.....	20	{ (A Whole) 20 (A) 18-19 (B) 16-17 (C) 14-15
Color.....	30	{ (A) (A Whole) 27-30 (B) 24-26 (C) 21-23 (SStd.) 10-20
Defects.....	30	{ (A) (A Whole) 27-30 (B) 24-26 (C) 21-23 (SStd.) 10-20
Total score.....	100	

<sup>1</sup> Indicates limiting rule.

<sup>2</sup> Indicates special limiting rule.

The United States Standards for Grades of Canned Tomatoes (which is the seventh issue) contained in this subpart shall become effective thirty days

after the date of publication hereof in the FEDERAL REGISTER and thereupon will supersede the United States Standards for Grades of Canned Tomatoes which have been in effect since August 1, 1946.

Dated: June 18, 1964.

G. R. GRANGE,  
*Deputy Administrator,*  
*Marketing Services.*

*Published in the Federal Register of June 23, 1964 (29 F.R. 7909)*









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