



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Fruit and
Vegetable
Division**

**Processed
Products
Branch**

United States Standards for Grades of Orange Marmalade

Effective date December 31, 1974

This is the first issue, as amended, of the United States Standards for Grades of Orange Marmalade published in the **FEDERAL REGISTER** of November 20, 1974 (39 FR 40745) to become effective December 31, 1974. This issue supersedes the first issue, which has been in effect since June 22, 1951.

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:

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United States Standards for Grades of Orange Marmalade

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Authority:	Agricultural Marketing Act of 1946, Secs. 203, 205, 60 Stat. 1087, as amended, 1090, 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.

§52.1451 Product description.

Orange marmalade is the semi-solid or gel-like product prepared from orange fruit ingredients together with one or more sweetening ingredients and may contain suitable food acids, food pectins, lemon juice, or lemon peel. The ingredients are concentrated by cooking to such a point that the soluble solids content of the finished marmalade is not less than 65 percent.

§52.1452 Kinds of orange marmalade.

- (a) **Sweet orange marmalade** means that the orange fruit ingredient consists principally of such varieties as Navel and Valencia or other commercial dessert varieties other than tangerines. **Sweet orange marmalade** is prepared from not less than 30 parts by weight of orange fruit ingredient to 70 parts by weight of sweetening ingredient.
- (b) **Bitter orange marmalade** means that the orange fruit ingredient consists principally of the Seville or sour type of oranges other than tangerines. **Bitter orange marmalade** is prepared from not less than 25 parts by weight of orange fruit ingredient to 75 parts by weight of sweetening ingredient.
- (c) **Sweet and bitter orange marmalade** means that the orange fruit ingredient consists of a blend of sweet oranges and bitter oranges other than tangerines. **Sweet and bitter orange marmalade** is prepared from not less than 30 parts by weight of orange fruit ingredient to 70 parts by weight of sweetening ingredient. It is recommended that the orange fruit ingredient from which **Sweet and bitter orange marmalade** is prepared be approximately 50 percent by weight of sweet orange material and bitter orange material.

§52.1453 Styles of orange marmalade.

- (a) **Sliced** means that the peel in the orange marmalade is in thin strips.
- (b) **Chopped** means that the peel in the orange marmalade is in small pieces (such as irregular shapes and dice-like shapes).

§52.1454 Types of orange marmalade.

- (a) **Type I Clear** means that the peel is suspended in a translucent semi-solid or gel-like mass.
- (b) **Type II, Natural** means that the peel is suspended in a cloudy or opaque semi-solid or gel-like mass.

§52.1455 Grades of orange marmalade.

- (a) **U.S. Grade A or U.S. Fancy** is the quality of orange marmalade that is practically free from defects; that possesses a good flavor and odor; and that is of such quality with respect to color and consistency and character as to score not less than 85 points when scored in accordance with the scoring system outlined in this subpart.
- (b) **U.S. Grade B or U.S. Choice** is the quality of orange marmalade that possesses a reasonably good color; that possesses a reasonably good consistency and character; that is reasonably free from defects; that possesses a reasonably good flavor and odor; and that scores not less than 70 points when scored in accordance with the scoring system outlined in this subpart.
- (c) **U.S. Grade D or Substandard** is the quality of orange marmalade that fails to meet the requirements of U.S. Grade B or U.S. Choice.

§52.1456 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 as full as practicable with orange marmalade and that the product occupy not less than 90 percent of the volume of the container.

§52.1457 Ascertaining the grade.

The grade of orange marmalade is ascertained by considering, in conjunction with the requirements of the respective grade, the respective ratings for the factors of color, consistency and character, absence of defects, and flavor and odor. 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
Consistency and character	20
Absence of defects	20
Flavor and odor	<u>40</u>
Total Score	100

§52.1458 Ascertaining the rating for the factors which are scored.

The essential variations within each factor 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).

§52.1459 Color.

- (a) **"A" classification.** Orange marmalade that possesses a good color may be given a score of 17 to 20 points. **Good color** means that the product possesses a practically uniform bright color characteristic of properly prepared and properly processed orange marmalade for the respective kind; that the product is practically free from green-colored peel; and that the product is free from dullness of color due to oxidation or improper processing or improper cooling or other causes.
- (b) **"B" classification.** If the orange marmalade possesses a reasonably good color, a score of 14 to 16 points may be given. **Reasonably good color** means that the product possesses a reasonably uniform color; that the product is reasonably free from green-colored peel; that the color of the product may be slightly dull but is not off-color nor excessively dark due to oxidation or improper processing or improper cooling or other causes.
- (c) **"SStd" classification.** Orange marmalade that fails 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 U.S. Grade D or Substandard, regardless of the total score for the product (this is a limiting rule).

§52.1460 Consistency and Character.

- (a) **General.** The factor of consistency and character refers to the gel strength of the product, the amount and distribution of the peel in the product, the tenderness of the peel, the uniformity of width of slices of peel, and the uniformity of size of small pieces of peel.
- (b) **"A" classification.** Orange marmalade that possesses a good consistency and character may be given a score of 17 to 20 points. **Good consistency and character** means that the product is a firm but tender gel and may possess no more than a very slight tendency to flow; that the product contains a substantial, but not excessive, amount of peel; that the peel is evenly distributed; that the peel is tender; that in **sliced** style, the thin strips of peel are predominantly of strips approximating 1/32 inch to 1/16 inch in width; and that in **chopped** style, the small pieces of peel are reasonably uniform in size.

- (c) **"B" classification.** If the orange marmalade possesses a reasonably good consistency and character, a score of 14 to 16 points may be given. **Reasonably good consistency and character** means that the product may be definitely firm but is not excessively gummy nor excessively rubbery or that the product may be viscous but is not excessively thin; that the peel is fairly evenly distributed; that the peel is reasonably tender; that in **sliced** style the thin strips of peel are predominantly of strips approximating no more than 1/8 inch in width; and that in **chopped** style, the small pieces of peel are reasonably uniform in size.
- (d) **"SStd" classification.** Orange marmalade that fails 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 U.S. Grade D or Substandard, regardless of the total score for the product (this is a limiting rule).

§52.1461 Absence of defects.

- (a) **General.** The factor of absence of defects refers to the degree of freedom from seeds or portions of seeds, from blemished peel, from objectionable material, from harmless extraneous material, and from any other defects not specifically mentioned that affect the appearance and eating quality of the product.
 - (1) **Harmless extraneous material** includes, but is not limited to, small particles of leaves, undeveloped seeds or particles of seeds, that measure not more than 3/16 inch in any dimension, or other similar materials that are harmless.
 - (2) **Seeds or portions of seeds** means any seed or any portion thereof, whether or not fully developed, that measures more than 3/16 inch in any dimension.
 - (3) **Blemished peel** means pieces of the peel blemished by surface discoloration to the extent that the appearance or eating quality is materially affected.
- (b) **"A" classification.** Orange marmalade that is practically free from defects may be given a score of 17 to 20 points. **Practically free from defects** means that there may be present on an average for each 16 ounces net weight, not more than 1 seed or portion of seed and not more than 6 pieces of blemished peel; and that in a single container, the appearance and eating quality of the product is not materially affected by the presence of seeds, portions of seeds, blemished peel, objectionable material, harmless extraneous material, any other defects not specifically mentioned, or any combination thereof.

- (c) **"B" classification.** If the orange marmalade is reasonably free from defects, a score of 14 to 16 points may be given. Orange marmalade that falls into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). **Reasonably free from defects** means that there may be present on an average for each 16 ounces net weight, not more than a total of 2 seeds or portions of seeds and not more than 10 pieces of blemished peel; and that in a single container, the appearance and eating quality of the product is not seriously affected by the presence of seeds, portions of seeds, blemished peel, objectionable material, harmless extraneous material, any other defects not specifically mentioned, or any combination thereof.
- (d) **"SStd" classification.** Orange marmalade that fails 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 U.S. Grade D or Substandard, regardless of the total score for the product (this is a limiting rule).

§52.1462 Flavor and odor.

- (a) **"A" classification.** Orange marmalade that possesses a good flavor and odor may be given a score of 34 to 40 points. **Good flavor and odor** means that the product possesses a good and distinct flavor and aroma characteristic of properly processed orange marmalade for the respective kind; that the flavor of the product is neither excessively tart nor excessively sweet; and that the product is free from any caramelized flavor and is free from objectionable flavor and objectionable odor of any kind.
- (b) **"B" classification.** If the orange marmalade possesses a reasonably good flavor and odor, a score of 28 to 33 points may be given. Orange marmalade that falls into this classification shall not be graded above U.S. Grade B or U.S. Choice, regardless of the total score for the product (this is a limiting rule). **Reasonably good flavor and odor** means that the product possesses a reasonably good flavor characteristic of the orange marmalade for the respective kind; that the flavor of the product may be excessively tart or excessively sweet or may possess a slightly caramelized flavor but that the product is free from objectionable flavor and objectionable odor of any kind.
- (c) **"SStd" classification.** Orange marmalade that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 27 points and shall not be graded above U.S. Grade D or Substandard, regardless of the total score for the product (this is a limiting rule).

§52.1463 Explanation of terms or analyses.

- (a) **Orange fruit ingredient** means the edible portions of clean, sound, mature oranges, free from material dryness and damage by freezing, including properly prepared orange peel and orange juice but excluding oranges that are artificially colored. Orange fruit ingredients consist of a mixture of cooked orange peel or canned orange peel together with fresh, cooked, canned, concentrated, or frozen orange juice or any combination thereof. The orange juice may be strained or filtered or may contain part or all of the cellular or edible fibrous portions of the oranges used.
- (b) **The weight of orange fruit ingredient** means:
 - (1) The weight of orange peel after the removal of waste materials commonly removed therefrom and prior to steaming or cooking or canning and exclusive of any added water, water used in preparation, added sweetening ingredients, lemon peel, or lemon juice;
 - (2) The weight of orange juice, whether concentrated or not, approximating the average soluble solids of single-strength juice; and
 - (3) That the proportion by weight of such orange peel to such orange juice approximates not more than the orange peel (exclusive of waste materials commonly removed therefrom) and orange juice from sound, mature oranges free from material dryness and damage by freezing.
- (c) **Sweetening ingredients** mean sugar, invert sugar sirup, dextrose, corn sirup, corn sirup solids, glucose sirup, or any mixture thereof.
- (d) **The weight of sweetening ingredient** means the weight of the solids of such ingredient or ingredients.
- (e) **Soluble solids content** is determined by the method prescribed in the **Official Methods of Analysis of the Association of Official Agriculture Chemists** as outlined under the applicable method for determining the soluble solids in marmalades, except that no correction is made for water-insoluble solids.

§52.1464 Ascertaining the grade of a lot.

The grade of a lot of orange marmalade covered by these standards is determined by 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).

§52.1465 Score sheet for orange marmalade.

Size and kind of container			
Container marks or identification			
Label			
Net weight (ounces)			
Kind			
Style			
Type			
Soluble solids (percent by refractometer)			
Factors		Score Points	
Color	20	"A" 17-20 "B" 14-16 "D" 0-13 <u>1/</u>	
Consistency and character	20	"A" 17-20 "B" 14-16 "D" 0-13 <u>1/</u>	
Absence of defects	20	"A" 17-20 "B" 14-16 <u>1/</u> "D" 0-13 <u>1/</u>	
Flavor and odor	40	"A" 34-40 "B" 28-33 <u>1/</u> "D" 0-27 <u>1/</u>	
Total Score	100		
Grade			

1/ Indicates limiting rule.

Dated: November 14, 1974

/s/ _____

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Administrator,
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