



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Fruit and
Vegetable
Division**

**Fresh
Products
Branch**

United States Standards for Grades of Florida Oranges and Tangelos

Effective February 20, 1997
(Reprinted - February 1997)

United States Standards for Grades of Florida Oranges and Tangelos

General

51.1140 General.

Grades

51.1141 U.S. Fancy.

51.1142 U.S. No. 1 Bright.

51.1143 U.S. No. 1.

51.1144 U.S. No. 1 Golden.

51.1145 U.S. No. 1 Bronze.

51.1146 U.S. No. 1 Russet.

51.1147 U.S. No. 2 Bright.

51.1148 U.S. No. 2.

51.1149 U.S. No. 2 Russet.

51.1150 U.S. No. 3.

Tolerances

51.1151 Tolerances.

Application of Tolerances

51.1152 Application of tolerances.

Size

51.1153 Size.

Definitions

51.1154 Similar varietal characteristics.

51.1155 Well colored.

51.1156 Firm.

51.1157 Well formed.

51.1158 Mature.

51.1159 Smooth texture.

51.1160 Injury.

51.1161 Discoloration.

51.1162 Fairly smooth texture.

51.1163 Damage.

51.1164 Fairly well colored.

51.1165 Reasonably well colored.

51.1166 Poorly colored.

51.1167 Fairly firm.

51.1168 Slightly misshapen.

51.1169 Slightly rough texture.

51.1170 Serious damage.

51.1171 Misshapen.

51.1172 Slightly spongy.

51.1173 Very serious damage.

51.1174 Diameter.

51.1175 Classification of defects.

Standards for Internal Quality of Common Sweet Oranges (*Citrus Sinensis* (L) Osbeck)

51.1176 U.S. Grade AA Juice (Double A).

51.1177 U.S. Grade A Juice.

51.1178 Maximum anhydrous citric permissible for corresponding total soluble solids.

51.1179 Method of juice extraction.

General

§51.1140 General.

The standards contained in this subpart apply only to the common or sweet orange group and varieties and hybrids of varieties belonging to the Mandarin group, except tangerines, and to the citrus fruit commonly known as "tangelo" - a hybrid between tangerine or mandarin orange (*Citrus reticulata*) with either the grapefruit or pomelo (*C. paradisi* and *C. grandis*). Separate U.S. standards apply to tangerines. The standards for internal quality contained in §§51.1176 through 51.1179 apply only to common sweet oranges (*Citrus sinensis* (L) Osbeck).

Grades

§51.1141 U.S. Fancy.

"U.S. Fancy" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-tenth of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.);

(2) Firm;

(3) Mature;

(4) Similar varietal characteristics;

(5) Smooth texture;

(6) Well colored; and,

(7) Well formed.

(b) Free from:

(1) Ammoniation;

(2) Buckskin;

(3) Caked melanose;

(4) Creasing;

(5) Decay;

(6) Scab;

(7) Split navels;

(8) Sprayburn;

(9) Undeveloped segments;

(10) Unhealed skin breaks; and,

(11) Wormy fruit.

(c) Free from injury caused by:

(1) Bruises;

- (2) Green spots;
- (3) Oil spots;
- (4) Rough, wide or protruding navels;
- (5) Scale;
- (6) Scars;
- (7) Skin breakdown; and,
- (8) Thorn scratches.
- (d) Free from damage caused by:
 - (1) Dirt or other foreign material;
 - (2) Disease;
 - (3) Dryness or mushy condition;
 - (4) Hail;
 - (5) Insects;
 - (6) Riciness or woodiness;
 - (7) Sunburn; and,
 - (8) Other means.
- (e) For tolerances see §51.1151.
- (f) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1142 U.S. No. 1 Bright.

The requirements for this grade are the same as for U.S. No. 1 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration.

- (a) For tolerances see §51.1151.
- (b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1143 U.S. No. 1.

"U.S. No. 1" consists of oranges which meet the following requirements:

- (a) Basic requirements:
 - (1) Color;
 - (i) Early and midseason varieties shall be fairly well colored.
 - (ii) For Valencia and other late varieties, not less than 50 percent, by count, shall be fairly well colored and the remainder reasonably well colored.
 - (2) Discoloration: Not more than one-third of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.);
 - (3) Fairly smooth texture;
 - (4) Firm;
 - (5) Mature;
 - (6) Similar varietal characteristics; and,
 - (7) Well formed.
- (b) Free from:
 - (1) Decay;

- (2) Unhealed skin breaks; and,
- (3) Wormy fruit.
- (c) Free from damage caused by:
 - (1) Ammoniation;
 - (2) Bruises;
 - (3) Buckskin;
 - (4) Caked melanose;
 - (5) Creasing;
 - (6) Dirt or other foreign material;
 - (7) Disease;
 - (8) Dryness or mushy condition;
 - (9) Green spots;
 - (10) Hail;
 - (11) Insects;
 - (12) Oil spots;
 - (13) Riciness or woodiness;
 - (14) Scab;
 - (15) Scale;
 - (16) Scars;
 - (17) Skin breakdown;
 - (18) Split, rough or protruding navels;
 - (19) Sprayburn;
 - (20) Sunburn;
 - (21) Thorn scratches; and,
 - (22) Other means.
- (d) For tolerances see §51.1151.
- (e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1144 U.S. No. 1 Golden.

The requirements for this grade are the same as for U.S. No. 1 except that not more than 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration.

- (a) For tolerances see §51.1151.
- (b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1145 U.S. No. 1 Bronze.

The requirements for this grade are the same as for U.S. No. 1 except at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by discoloration. The predominating discoloration on each fruit shall be of rust mite type.

- (a) For tolerances see §51.1151.
- (b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double

A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1146 U.S. No. 1 Russet.

The requirements for this grade are the same as for U.S. No. 1 except that at least 30 percent, by count, of the fruit shall have more than one-third of their surface, in the aggregate, affected by any type of discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1147 U.S. No. 2 Bright.

The requirements for this grade are the same as for U.S. No. 2 except that fruit shall have not more than one-fifth of its surface, in the aggregate, affected by discoloration.

(a) For tolerances see §51.1151.

(b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1148 U.S. No. 2.

"U.S. No. 2" consists of oranges which meet the following requirements:

(a) Basic requirements:

(1) Discoloration: Not more than one-half of the surface, in the aggregate, may be affected by discoloration. (See §51.1161.)

(2) Fairly firm;

(3) Mature;

(4) Reasonably well colored;

(5) Similar varietal characteristics;

(6) Not more than slightly misshapen; and,

(7) Not more than slightly rough texture.

(b) Free from:

(1) Decay;

(2) Unhealed skin breaks; and,

(3) Wormy fruit.

(c) Free from serious damage caused by:

(1) Ammoniation;

(2) Bruises;

(3) Buckskin;

(4) Caked melanose;

(5) Creasing;

(6) Dirt or other foreign material;

(7) Disease;

(8) Dryness or mushy condition;

(9) Green spots;

(10) Hail;

- (11) Insects;
- (12) Oil spots;
- (13) Riciness or woodiness;
- (14) Scab;
- (15) Scale;
- (16) Scars;
- (17) Skin breakdown;
- (18) Split, rough or protruding navels;
- (19) Sprayburn;
- (20) Sunburn;
- (21) Thorn scratches; and,
- (22) Other means.
- (d) For tolerances see §51.1151.
- (e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1149 U.S. No. 2 Russet.

The requirements for this grade are the same as for U.S. No. 2 except that at least 10 percent of the fruit shall have more than one-half of their surface, in the aggregate, affected by any type of discoloration.

- (a) For tolerances see §51.1151.
- (b) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

§51.1150 U.S. No. 3.

"U.S. No. 3" consists of oranges which meet the following requirements:

- (a) Basic requirements:
 - (1) Mature;
 - (2) Misshapen;
 - (3) Poorly colored;
 - (4) Rough texture, not seriously lumpy;
 - (5) Similar varietal characteristics; and,
 - (6) Slightly spongy.
- (b) Free from:
 - (1) Decay;
 - (2) Unhealed skin breaks; and,
 - (3) Wormy fruit.
- (c) Free from very serious damage caused by:
 - (1) Ammoniation;
 - (2) Bruises;
 - (3) Buckskin;
 - (4) Caked melanose;
 - (5) Creasing;

- (6) Disease;
- (7) Dryness or mushy condition;
- (8) Hail;
- (9) Insects;
- (10) Riciness or woodiness;
- (11) Scab;
- (12) Scale;
- (13) Scars;
- (14) Skin breakdown;
- (15) Split navels;
- (16) Sprayburn;
- (17) Sunburn; and,
- (18) Other means.
- (d) For tolerances see §51.1151.
- (e) Internal quality: Lots meeting the internal requirements for "U.S. Grade AA Juice (Double A)" or "U.S. Grade A Juice" may be so specified in connection with the grade. (See §§51.1176 - 51.1179.)

Tolerances

§51.1151 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, based on a minimum 25 count sample, are provided as specified:

(a) Defects.

(1) U.S. Fancy, U.S. No. 1 Bright, U.S. No. 1, U.S. No. 1 Golden, U.S. No. 1 Bronze, U.S. No. 1 Russet, U.S. No. 2 Bright, U.S. No. 2, and U.S. No. 2 Russet grades.

(i) For defects at shipping point¹. Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than 5 percent shall be allowed for defects causing very serious damage, including in this latter amount not more than 1 percent for decay or wormy fruit.

(ii) For defects en route or at destination. Not more than 12 percent of the fruit which fail to meet the requirements of the specified grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

(A) 10 percent for fruit having permanent defects; or,

(B) 7 percent for defects causing very serious damage, including therein not more than 5 percent for very serious damage by permanent defects and not more than 3 percent for decay or wormy fruit.

(2) U.S. No. 3.

(i) For defects at shipping point¹. Not more than 10 percent of the fruit in any lot may fail to meet the requirements of the grade: **Provided**, that included in this amount not more than 1

¹Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.

percent shall be for decay or wormy fruit.

(ii) **For defects en route or at destination.** Not more than 12 percent of the fruit which fail to meet the requirements of the grade: **Provided**, that included in this amount not more than the following percentages shall be allowed for defects listed:

(A) 10 percent for fruit having permanent defects; or,

(B) 3 percent for decay or wormy fruit.

(b) **Discoloration.**

(1) **U.S. No. 1 Bright, U.S. No. 1, U.S. No. 2 Bright, and U.S. No. 2.** Not more than 10 percent of the fruit in any lot may fail to meet the requirements relating to discoloration as specified in each grade. No sample may have more than 20 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(2) **U.S. No. 1 Golden.** Not more than 30 percent of the fruit shall have in excess of one-third of their surface, in the aggregate, and no part of any tolerance shall be allowed to increase this percentage. No sample may have more than 40 percent of the fruit with excessive discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(3) **U.S. No. 1 Bronze, and U.S. No. 1 Russet.** At least 30 percent of the fruit shall have in excess of one-third of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage. No sample may have less than 20 percent of the fruit with required discoloration: **And provided further**, that the entire lot averages within the percentage specified.

(4) **U.S. No. 2 Russet.** At least 10 percent of the fruit shall have in excess of one-half of the surface, in the aggregate, affected by discoloration, and no part of any tolerance shall be allowed to reduce this percentage: **And provided further**, that the entire lot averages within the percentage specified.

Application of Tolerances

§51.1152 Application of tolerances.

Individual samples are subject to the following limitations, unless otherwise specified in §51.1151. Individual samples shall have not more than one and one-half times a specified tolerance of 10 percent or more, and not more than double a specified tolerance of less than 10 percent: **Provided**, that at least one decayed or wormy fruit may be permitted in any sample: **And provided further**, that the averages for the entire lot are within the tolerances specified for the grade.

Size

§51.1153 Size.

(a) Fruits shall be fairly uniform in size and shall be packed in containers according to approved and recognized methods.

(b) "Fairly uniform in size" means that not more than 10 percent of the oranges per sample may vary more than one-half inch in diameter.

(c) In order to allow for variations incident to proper sizing, not more than 10 percent of the samples in any lot may fail to meet the requirements of size.

Definitions

§51.1154 Similar varietal characteristics.

"Similar varietal characteristics" means that the fruits in any container are similar in color and shape.

§51.1155 Well colored.

"Well colored" as applied to common oranges and tangelos means that the fruit has characteristic color for the variety with practically no trace of green color.

§51.1156 Firm.

"Firm" as applied to common oranges and tangelos means that the fruit is not soft, or noticeably wilted or flabby; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), "firm" means that the fruit is not extremely puffy, although the skin may be slightly loose.

§51.1157 Well formed.

"Well formed" means that the fruit has the shape characteristic of the variety.

§51.1158 Mature.

"Mature" shall have the same meaning assigned the term in the Florida Citrus Code, Chapter 601, 1995 Edition, and the Official Rules Affecting the Florida Citrus Industry, in effect as of February 12, 1995. These orange maturity requirements are contained in the Florida Citrus Code, Chapter 601, Florida Statutes, Sections 601.19, and 601.20, 1995 Edition, and the State of Florida Department of Citrus Official Rules Affecting the Florida Citrus Industry, Part 1, Chapter 20-13 Market Classification, Maturity Standards and Processing or Packing Restrictions for Hybrids in effect as of February 12, 1995. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be obtained from, Florida Department of Citrus, Post Office Box 148, Lakeland, Florida 33802 or copies of both regulations may be inspected at USDA, AMS, F&VD, FPB, Standardization Section, Room 2065-S, 14th and Independence Ave., Washington, DC 20250 or at the Office of the Federal Register, Suite 700, 800 North Capitol Street, Washington, DC.

§51.1159 Smooth texture.

"Smooth texture" means that the skin is thin and smooth for the variety and size of the fruit.

§51.1160 Injury.

"Injury" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects which slightly detracts from the appearance, or the edible or marketing quality of the fruit.

§51.1161 Discoloration.

"Discoloration" means russetting of a light shade of golden brown caused by rust mite or other means. Lighter shades of discoloration caused by smooth or fairly smooth superficial scars or other means may be allowed on a greater area, or darker shades may be allowed on a lesser area, provided no discoloration caused by speck type melanose or other means may detract from the appearance of the fruit to a greater extent than the shade and amount of discoloration allowed for the grade.

§51.1162 Fairly smooth texture.

"Fairly smooth texture" means that the skin is fairly thin and not coarse for the variety and size of the fruit.

§51.1163 Damage.

"Damage" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the fruit.

§51.1164 Fairly well colored.

"Fairly well colored" as applied to common oranges and tangelos means that except for an aggregate area of green color which does not exceed the area of a circle 1 inch (25.4 mm) in diameter, the characteristic color predominates over the green color.

§51.1165 Reasonably well colored.

"Reasonably well colored" as applied to common oranges means that the characteristic color predominate over the green color on at least two-thirds of the fruit surface, in the aggregate.

§51.1166 Poorly colored.

"Poorly colored" as applied to common oranges means that not more than 25 percent of the surface may be solid dark green color.

§51.1167 Fairly firm.

"Fairly firm" as applied to common oranges and tangelos, means that the fruit may be slightly soft, but not bruised; as applied to oranges of the Mandarin group (Satsumas, King, Mandarin), means that the skin of the fruit is not extremely puffy or extremely loose.

§51.1168 Slightly misshapen.

"Slightly misshapen" means that the fruit is not of the shape characteristic of the variety but is not appreciably elongated or pointed or otherwise deformed.

§51.1169 Slightly rough texture.

"Slightly rough texture" means that the skin is not of smooth texture but is not materially ridged, grooved, or wrinkled.

§51.1170 Serious damage.

"Serious damage" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance, or the edible or marketing quality of the fruit.

§51.1171 Misshapen.

"Misshapen" means that the fruit is decidedly elongated, pointed or flatsided.

§51.1172 Slightly spongy.

"Slightly spongy" means that the fruit is puffy or slightly wilted but not flabby.

§51.1173 Very serious damage.

"Very serious damage" means any specific defect described in §51.1175, Table I; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which very seriously detracts from the appearance, or the edible or marketing quality of the fruit.

§51.1174 Diameter.

"Diameter" means the greatest dimension measured at right angles to a line from stem to blossom end.

§51.1175 Classification of defects.

Table I

Factor	Injury	Damage	Serious Damage	Very Serious Damage
Ammoniation		Not occurring as light speck type.	Scars are cracked or dark and aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Bruises	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Segment walls are collapsed, or rag is ruptured and juice sacs are ruptured.	Fruit is split open, peel is badly watersoaked, or rag is ruptured and juice sacs are ruptured causing a mushy condition affecting all segments more than 3/4 inch (19.1 mm) at bruised area or the equivalent of this amount, by volume, when affecting more than one area on the fruit.
Buckskin		Aggregating more than a circle 1 inch (25.4 mm) in diameter.	Aggregating more than 25 percent of the surface.	Aggregating more than 50 percent of the surface.
Caked melanose		Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.

Creasing		Materially weakens the skin, or extends over more than one-third of the surface.	Seriously weakens the skin, or extends over more than one-half of the surface.	Very seriously weakens the skin, or is distributed over practically the entire surface.
Dryness or mushy condition		Affecting all segments more than 1/4 inch (6.4 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 1/2 inch (12.7 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.	Affecting all segments more than 3/4 inch (19.1 mm) at stem end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit.
Green spots	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter, caused by scale.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter, caused by scale.	Aggregating more than a circle 7/8 inch (22.2 mm) in diameter, caused by scale.	Aggregating more than 1/3 of the surface, caused by scale.
Oil spots	Aggregating more than a circle 3/8 inch (9.5 mm) in diameter.	Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.	Aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.	Aggregating more than 1/3 of the surface.
Scab		Materially detracts from the shape or texture, or aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Seriously detracts from the shape or texture, or aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Scale	More than a few adjacent to the "button" at the stem end, or more than 6 scattered on other portions of the fruit.	Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Aggregating more than a circle 3/4 inch (19.1 mm) in diameter.	Aggregating more than 25 percent of the surface.

Scars, Hail, or Thorn scratches [For smooth or fairly smooth superficial scars see §51.1161.]	Depressed, not smooth, or detracts from appearance more than the amount of discoloration permitted in the grade.	Deep or rough aggregating more than a circle 1/4 inch (6.4 mm) in diameter; slightly rough with slight depth aggregating more than a circle 7/8 inch (22.2 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter.	Deep or rough aggregating more than a circle 1/2 inch (12.7 mm) in diameter; slightly rough with slight depth aggregating more than a circle 1-1/4 inches (31.8 mm) in diameter; smooth or fairly smooth with slight depth aggregating more than 10 percent of fruit surface.	Deep or rough or unsightly that appearance is very seriously affected.
Skin breakdown	Aggregating more than a circle 1/4 inch (6.4 mm) in diameter	Aggregating more than a circle 1/2 inch (12.7 mm) in diameter.	Aggregating more than a circle 7/8 inch (22.2 mm) in diameter.	Aggregating more than 25 percent of the surface.
Sprayburn		Aggregating more than a circle 5/8 inch (15.9 mm) in diameter.	Hard and aggregating more than a circle 1-1/2 inches (38.1 mm) in diameter.	Aggregating more than 25 percent of the surface.
Split, rough, protruding navels	Split is unhealed, or more than 1/8 inch (3.2 mm) in length, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from the appearance.	Split is unhealed, or more than 1/4 inch (6.4 mm) in length, or more than three well healed splits, or navel protrudes beyond the general contour, and opening is so wide, folded and ridged that it detracts from appearance.	Split is unhealed, or more than 1/2 inch (12.7 mm) in length, or two or more splits aggregate more than 1 inch (25.4 mm) in length, or navel protrudes beyond general contour, and opening is so wide, folded and ridged that it detracts from appearance.	Split is unhealed or fruit is seriously weakened.
Sunburn		Skin is flattened, dry, darkened, or hard and the affected area exceeds 25 percent of the surface.	Skin is hard and affects more than one-third of the surface.	Aggregating more than 50 percent of the surface.

Note: All references to area or aggregating area, or length in this standard are based on an orange or tangelo 2-7/8 inches (73.0 mm) in diameter, allowing proportionately greater areas on larger fruit and lesser areas on smaller fruit.

Standards for Internal Quality of Common Sweet Oranges (Citrus Sinensis (L) Osbeck)
§51.1176 U.S. Grade AA Juice (Double A).

Any lot of oranges, the juice content of which meets the following requirements, may be designated "U.S. Grade AA Juice (Double A)":

- (a) Each lot of fruit shall contain an average of not less than 5 gallons (18.9 liters) of juice per standard packed box of 1-3/5 bushels.
- (b) The average juice content for any lot of fruit shall have not less than 10 percent total soluble solids, and not less than one-half of 1 percent anhydrous citric acid, or more than the permissible maximum acid specified in Table II of §51.1178.

§51.1177 U.S. Grade A Juice.

Any lot of oranges, the juice content of which meets the following requirements, may be designated "U.S. Grade A Juice":

- (a) Each lot of fruit shall contain an average of not less than 4-1/2 gallons (17.0 liters) of juice per standard packed box of 1-3/5 bushels.
- (b) The average juice content for any lot of fruit shall have not less than 9 percent total soluble solids, and not less than one-half of 1 percent anhydrous citric acid, or more than the permissible maximum acid specified in Table II of §51.1178.

§51.1178 Maximum anhydrous citric acid permissible for corresponding total soluble solids.

For determining the grade of juice, the maximum permissible anhydrous citric acid content in relation to corresponding total soluble solids in the fruit is set forth in the following Table II together with the minimum ratio of total soluble solids to anhydrous citric acid:

Table II

Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
9.0.....	0.947	9.50-1
9.1.....	0.963	9.45-1
9.2.....	0.979	9.40-1
9.3.....	0.995	9.35-1
9.4.....	1.011	9.30-1
9.5.....	1.027	9.25-1
9.6.....	1.043	9.20-1
9.7.....	1.060	9.15-1
9.8.....	1.077	9.10-1
9.9.....	1.094	9.05-1
10.0.....	1.111	9.00-1
10.1.....	1.128	8.95-1

Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
10.2.....	1.146	8.90-1
10.3.....	1.164	8.85-1
10.4.....	1.182	8.80-1
10.5.....	1.200	8.75-1
10.6.....	1.218	8.70-1
10.7.....	1.237	8.65-1
10.8.....	1.256	8.60-1
10.9.....	1.275	8.55-1
11.0.....	1.294	8.50-1
11.1.....	1.306	8.50-1
11.2.....	1.318	8.50-1
11.3.....	1.329	8.50-1
11.4.....	1.341	8.50-1
11.5.....	1.353	8.50-1
11.6.....	1.365	8.50-1
11.7.....	1.376	8.50-1
11.8.....	1.388	8.50-1
11.9.....	1.400	8.50-1
12.0.....	1.412	8.50-1
12.1.....	1.424	8.50-1
12.2.....	1.435	8.50-1
12.3.....	1.447	8.50-1
12.4.....	1.459	8.50-1
12.5.....	1.471	8.50-1
12.6.....	1.482	8.50-1
12.7.....	1.494	8.50-1
12.8.....	1.506	8.50-1
12.9.....	1.517	8.50-1

Total soluble solids (average pct)	Maximum anhydrous citric acid (average pct)	Minimum ratio of total soluble solids to anhydrous citric acid
13.0.....	1.530	8.50-1
13.1.....	1.541	8.50-1
13.2.....	1.553	8.50-1
13.3.....	1.565	8.50-1
13.4.....	1.576	8.50-1
13.5.....	1.588	8.50-1
13.6.....	1.600	8.50-1
13.7.....	1.612	8.50-1
13.8.....	1.624	8.50-1
13.9.....	1.635	8.50-1
14.0.....	1.647	8.50-1
14.1.....	1.659	8.50-1
14.2.....	1.671	8.50-1
14.3.....	1.682	8.50-1
14.4.....	1.694	8.50-1
14.5.....	1.705	8.50-1
14.6.....	1.718	8.50-1
14.7.....	1.729	8.50-1
14.8.....	1.741	8.50-1
14.9.....	1.753	8.50-1
15.0.....	1.765	8.50-1
15.1.....	1.776	8.50-1
15.2.....	1.788	8.50-1
15.3.....	1.800	8.50-1
15.4.....	1.812	8.50-1
15.5.....	1.824	8.50-1
15.6 or more.....		8.50-1

§51.1179 Method of juice extraction.

The juice used in the determining of solids, acids and juice content shall be extracted from representative samples as thoroughly as possible with a hand reamer or by such mechanical extractor or extractors as may be approved. The juice shall be strained through cheese cloth or other approved straining device of extra fine mesh to prevent passage of juice cells, pulp, or seeds.