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Branch

United States Standards for Grades of Canned Pineapple

Effective March 1, 1990

This is the fifth issue of the United States Standards for Grades of Canned Pineapple published in the **FEDERAL REGISTER** of January 30, 1990 (55 FR 3029) to become effective March 1, 1990.

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
CANNED PINEAPPLE

EFFECTIVE MARCH 1, 1990

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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.

§52.1711 Product description.

Canned Pineapple is the product represented as defined in the Standards of Identity, Quality, and Fill of Container for Canned Pineapple (21 CFR 145.180 and 145.181) issued under the Federal Food, Drug, and Cosmetic Act.

§52.1712 Styles.

- (a) **Whole** consists of whole fruit peeled and cored into reasonably symmetrical pineapple cylinders with both ends cut perpendicular to the cylinder axis.
- (b) **Slices** consist of uniformly cut circular slices or rings cut across the axis of the peeled, cored pineapple cylinders.
- (c) **Half slices** consist of uniformly cut, approximately semi-circular halves of slices.
- (d) **Broken slices** consist of arc-shaped portions which are not required to be uniform in size and/or shape.
- (e) **Spears** consist of predominantly 65 mm (2.5 in), or longer, slender sectors cut radially and lengthwise from peeled cored pineapple cylinders.
- (f) **Tidbits** consist of predominantly 8 mm (0.31 in) to 13 mm (0.51 in), reasonably uniform wedge-shaped sectors cut from slices or portions thereof.
- (g) **Chunks** consist of short, thick units cut from slices and/or from peeled, cored pineapple, are predominantly more than 13 mm (0.51 in) in both thickness and width, and less than 38 mm (1.5 in) in length.
- (h) **Cubes** consist of reasonably uniform, cube-shaped units, predominantly 14 mm (0.55 in) or less in the longest edge dimension.
- (i) **Crushed** consists of finely cut, finely shredded or grated, or small diced pieces of canned pineapple.

§52.1713 Definition of terms.

In these U.S. standards, unless otherwise required by the contest, the following terms shall be construed, respectively, to mean:

- (a) **Acid** means the grams of anhydrous citric acid in 100 mL of the liquid drained from the product 15 days or more after the pineapple is canned, or the blended homogenized slurry of the comminuted entire contents of the container when measured less than 15 days after canning.
- (b) **Blemish** means surface areas and spots which contrast strongly in color or texture with the normal pineapple tissue, and are in excess of 2 mm (0.08 in) in the longest dimension of the exposed surface of the unit. Blemished include deep fruit eyes, fragments of shell, brown spots, bruised portions and other abnormalities that are possible to detect in good commercial practice before sealing in the containers. In crushed pineapple the term applies to each fragment of crushed pineapple that bears a blemish. **Serious blemish** means that the blemish seriously affects the appearance or edibility of the unit.
- (c) **Brix measurement** means the total soluble solids content of the product corresponding to a pure sucrose solution of the same specific gravity. It is measured 15 days or more after canning (natural equalization) or less than 15 days after canning on the blended homogenized slurry of the comminuted entire contents of the container (simulated equalization).
- (d) **Broken unit** means that the whole slice is severed from the core hole to the outer circumference.
- (e) **Character** refers to the degree of ripeness and maturity, the texture of the fruit, and the degree of freedom from core material.
- (1) **Good character** (applies to all styles) means the units are of practically uniform ripeness, are reasonably firm with fruitlets appearing as a compact structure, are reasonably free from porosity and there is not more than 11 g (0.4 oz) of core material contained in one pound of drained fruit. Half slices or broken slices that fall within this classification shall not be graded above U.S. Grade C, regardless of the total score for the product.
- (2) **Reasonably good character** (applies to all styles) means the units are of reasonably uniform ripeness, the fruitlets are reasonably compact in structure, are fairly free from porosity, and there is not more than 31 g (1.1 oz) of core material contained in one pound of drained fruit. Canned pineapple that falls within the classification defined as reasonably good character shall not be graded above U.S. Grade B, regardless of the total score for the product. Half slices or broken slices styles that fall within this classification shall not be graded above U.S. Grade C, regardless of the total score for the product.

- (3) **Fairly good character** (applies only to half slices or broken slices styles) means the units are of fairly uniform ripeness, the fruitlets are fairly compact in structure, the units are fairly free from porosity, and there is not more than 31 g (1.1 oz) of core material contained in one pound of drained fruit. Half slices or broken slices that fall with this classification shall not be graded above U.S. Grade C, regardless of the total score for the product.
- (4) **Poor character** means product that fails to meet the requirements of reasonably good or fairly good character as applicable for the style. Canned pineapple that falls within this classification shall not be graded above Substandard, regardless of the total score for the product.
- (f) **Chip** means any unit in cubes style that is less than 8 mm (0.331 in) in the greatest dimension.
- (g) **Color** refers to the predominant varietal characteristic color of properly ripened and properly processed pineapple.
- (1) **Good color** (applies to all styles) means that the color of the canned pineapple units or mass is bright and is characteristic of properly ripened and properly processed pineapple of similar varieties; and that there may be slight variations in shades of such characteristic color in the units within each unit or within the mass, and that white radiating streaks may be present: **Provided**, that such variations do not materially affect the appearance or edibility of the product. Half slices or broken slices styles that fall within this classification shall not be graded above U.S. Grade C, regardless of the total score for the product.
- (2) **Reasonably good color** (applies to all styles) means that the color of the canned pineapple units or mass may be no more than slightly dull but is characteristic of properly ripened and properly processed pineapple of similar varieties; and that there may be marked variations in shades of such characteristic color in the units, within each unit, or within the mass, and that white radiating streaks may be present: **Provided**, that such variations do not seriously affect the appearance or edibility of the product. Canned pineapple that falls within this classification shall not be graded above U.S. Grade B, regardless of the total score for the product, except half slices or broken slices styles which shall not be graded above U.S. Grade C, regardless of the total score for the product.

- (3) **Fairly good color** (applies only to half slices or broken slices styles) means that the color of the canned pineapple units or mass may be dull, but is characteristic of properly ripened and properly precessed pineapple of similar varieties; and, that there may be marked variations in shades of such characteristic color in the units, within each unit, or within the mass, and that white radiating streaks may be present which may seriously affect the appearance or edibility of the product. Half slices or broken slices styles of canned pineapple that fall within this classification shall not be graded above U.S. Grade C, regardless of the total score of the product.
- (4) **Poor color** (applies to all styles) means product that fails to meet the requirements of **reasonably good color or fairly good color** as applicable for the style. Product that falls within this classification shall not be graded above Substandard, regardless of the total score for the product.
- (h) **Core material** means the pineapple portion which is identified as definitely hard and characteristic of the center structure of pineapple, normally removed during processing.
- (i) **Defect** refers to the degree of freedom, for the applicable style, from trimmed units, blemished units, mashed units and from any other defects, including specks, in crushed style, that cannot be weighed which detract from the appearance or edibility of the product.
- (1) **Practically free from defects** (applies to all styles) means that the canned pineapple is practically free from any defects including defects not specifically mentioned. **Practically free from defects** means, for the respective styles:
- (i) **Whole.** Not more than 10 percent, by count, of the fruit units (cylinders) may be slightly trimmed, based on the average of all containers in the sample; not more than 10 percent by count of the fruit units (cylinders) may have an area greater than 7 percent of the total surface area which is mashed; however, a sample having less than 10 containers is permitted to have one slightly trimmed unit and one unit with more than 7 percent of the surface area mashed. Not more than 2 blemishes, including serious blemishes, per fruit unit (cylinder) is permitted.

- (ii) **Slices.** Not more than an occasional unit may be insignificantly or slightly trimmed, and no slices may be excessively trimmed. Not more than a total of 5 percent, by count, of the units may be blemished, including seriously blemished; or one unit in a container is permitted to be blemished, including seriously blemished if such unit exceeds the allowance of 5 percent, by count: **Provided**, that in all containers comprising the sample, such blemished including seriously blemished units, do not exceed an average of 5 percent of the total number of units. Not more than one unit in containers of less than 25 units, or more than three units in containers of 25 units or more, may be mashed.
- (iii) **Tidbits.** Not more than 5 percent of the drained weight may consist of units that are excessively trimmed. Not more than a total of 5 percent, by count, of the units may be blemished, including seriously blemished: **Provided**, that not more than 2-1/2 percent, by count, may be seriously blemished. Not more than 3 of the units in containers of less than 150 units, or not more than 2 percent of the units in containers of 150 or more, may be mashed.
- (iv) **Chunks.** Not more than a total of 5 percent, by count, of the units may be blemished and seriously blemished: **Provided**, that not more than 2-1/2 percent, by count, may be seriously blemished. Not more than 3 of the units in containers of less than 70 units, or not more than 5 percent of the units in containers of 70 units or more, may be mashed.
- (v) **Cubes.** Not more than a total of 2 percent of the drained weight may be blemished and seriously blemished: **Provided**, that not more than 1 percent of the drained weight may be seriously blemished.
- (vi) **Spears.** Not more than a reasonable amount of units may be insignificantly or slightly trimmed, but none may be excessively trimmed. Not more than a total of 5 percent, by count, of the units may be blemished and seriously blemished, or one unit in a container is permitted to be blemished or seriously blemished if such unit exceeds the allowance of 5 percent, by count: **Provided**, that in all containers comprising the sample, such blemished units and seriously blemished units do not exceed an average of 5 percent of the total number of units. Not more than one unit per container may be mashed.

- (vii) **Crushed.** Not more than 1/2 percent of the drained weight may consist of fragments bearing blemished, including seriously blemished fragments. Defects also include dark specks that cannot be weighed, yet affect the appearance or edibility of the product.
 - (viii) **Half slices.** Not more than a reasonable amount of units may be insignificantly or slightly trimmed, but none may be excessively trimmed. Not more than a total of 5 percent, by count, of the units may be blemished, including seriously blemished, or one unit in a container is permitted to be blemished or seriously blemished if such unit exceeds the allowance of 5 percent, by count: **Provided**, that in all containers comprising the sample, such blemished and seriously blemished units do not exceed an average of 5 percent of the total number of units. Not more than one unit in containers of 25 units or less, and not more than 3 units in containers of more than 25 units, may be mashed. Product that falls into this classification, shall not be graded above U.S. Grade C, regardless of the total score for the product.
 - (ix) **Broken slices.** Not more than 5 percent, by count, of the units may be excessively trimmed, not more than a total of 5 percent, by count, of the units may be blemished and seriously blemished. Not more than 5 percent of the units, by count, of the units may be mashed. Product that falls into this classification, shall not be graded above U.S. Grade C, regardless of the total score for the product.
- (2) **Reasonably free from defects** (applies to all styles) means that the canned pineapple is reasonably free from any defects, including defects not specifically mentioned. Except for half slices and broken slices styles, product that falls into this classification, shall not be graded above U.S. Grade B, regardless of the total score for the product. **Reasonably free from defects** means, for the respective styles:
- (i) **Whole.** Not more than 10 percent, by count, of the fruit units (cylinders) may be excessively trimmed, based on the average of all containers in the sample; not more than 10 percent, by count, of the fruit units (cylinders) may have an area greater than 10 percent of the total surface area which is mashed; however, a sample having less than 10 containers is permitted to have one excessively trimmed unit and one unit with more than 10 percent of the surface area mashed. Not more than 3 blemishes, including serious blemishes, per fruit unit (cylinder)

is permitted.

- (ii) **Slices.** Not more than a total of 20 percent, by count, of the units may be slightly and excessively trimmed: **Provided**, that not more than 7-1/2 percent, by count, of the units may be excessively trimmed; but in any container having not more than 10 units, one unit may be excessively trimmed; and in any container having more than 10 units, but not more than 27 units, two units may be excessively trimmed. Not more than a total of 12-1/2 percent, by count, of the units may be blemished and seriously blemished but in any container having not more than 5 units, one unit may be blemished or seriously blemished; in containers having more than 5 units, but not more than 10 units, two units may be blemished or seriously blemished; and in containers having more than 10 units, but not more than 32 units, four units may be blemished and seriously blemished. Not more than one unit in containers of 25 units or less, and not more than 3 units in containers of more than 25 units, may be mashed.
- (iii) **Tidbits.** Not more than 15 percent of the drained weight may consist of units that are excessively trimmed. Not more than a total of 12-1/2 percent, by count, of the units may be blemished and seriously blemished: **Provided**, that not more than 6-1/4 percent, by count, may be seriously blemished. Not more than 3 of the units in containers of less than 150 units, or not more than 2 percent of the units in containers of 150 units or more, may be mashed.
- (iv) **Chunks.** Not more than a total of 12-1/2 percent, by count, may be blemished and seriously blemished: **Provided**, that not more than 6-1/4 percent, by count, may be seriously blemished. Not more than 3 of the units in containers of less than 70 units, or not more than 5 percent of the units in containers of 70 units or more, may be mashed.
- (v) **Cubes.** Not more than a total of 12-1/2 percent, by count, may be blemished and seriously blemished: **Provided**, that not more than 6-1/4 percent, by count may be seriously blemished.

- (vi) **Spears.** Not more than a total of 20 percent, by count, of the units may be insignificantly, slightly or excessively trimmed: **Provided**, that not more than a total of 15 percent, by count, of the units may be excessively trimmed. Not more than 12-1/2 percent, by count, of the units may be blemished and seriously blemished; but in any container having not more than 5 units, one unit may be blemished or seriously blemished; in containers having more than 5 units, but not more than 10 units, two units may be blemished and seriously blemished; and in containers having more than 10 units, but not more than 32 units, four units may be blemished and seriously blemished. Not more than one unit per container may be mashed.
- (vii) **Crushed.** Not more than 1-1/4 percent of the drained weight may consist of blemished and seriously blemished fragments.
- (viii) **Half slices.** Not more than a total of 20 percent, by count, of the units may be slightly and excessively trimmed: **Provided**, that not more than 7-1/2 percent, by count, of the units may be excessively trimmed; but in any container having not more than 10 units one unit may be excessively trimmed, and in any containers having more than 10 units but not more than 27 units, two units may be excessively trimmed. Not more than a total of 8 percent, by count, of the units may be blemished and seriously blemished; or one unit in a container is permitted to be blemished or seriously blemished if such unit exceeds the allowance of 8 percent, by count: **Provided**, that in all containers comprising the sample, such blemished and seriously blemished units do not exceed an average of 8 percent of the total number of units. Not more than one unit in containers of 25 units or less, and not more than 3 units in containers of more than 25 units, may be mashed. Product that falls into this classification, shall not be graded above U.S. Grade C, regardless of the total score for the product.
- (ix) **Broken slices.** Not more than 10 percent, by count, of the units may be excessively trimmed. Not more than 8 percent, by count, of the units may be blemished or seriously blemished. Not more than 5 percent, by count, of the units may be mashed. Product that falls into this classification, shall not be graded above U.S. Grade C, regardless of the total score for the product.

(3) **Fairly free from defects** (applies only to half slices or broken slices styles) means that the canned pineapple is **fairly free from defects**, including defects not specifically mentioned. Half slices or broken slices styles that fall into this classification, shall not be graded above U.S. Grade C, regardless of the total score for the product, and, in addition, has the following meanings with respect to the following styles of canned pineapple:

(i) **Half slices.** Not more than 7-1/2 percent, by count, of the units may be excessively trimmed; but in any container having not more than 10 units, one unit may be excessively trimmed; and in any container having more than 10 units, but not more than 27 units, two units may be excessively trimmed. Not more than 12-1/2 percent, by count, of the units may be blemished and seriously blemished; but in any container having not more than 5 units, one unit may be blemished or seriously blemished; in containers having more than 5 units, but not more than 10 units, two units may be blemished and seriously blemished; and in containers having more than 10 units, but not more than 32 units, four units may be blemished and seriously blemished. Not more than one unit in containers of 25 units or less, and not more than 3 units in containers of more than 25 units, may be mashed.

(ii) **Broken slices.** Not more than 15 percent, by count, of the units may be excessively trimmed. Not more than 12-1/2 percent, by count, of the units may be blemished or seriously blemished; but in any container having more than 10 units, but not more than 32 units, four units may be blemished and seriously blemished. Not more than 5 percent, by count, of the units may be mashed.

(4) **Excessive defects** means canned pineapple which fails to meet either **reasonably free from defects** or **fairly free from defects** as applicable for the style. Product that falls into this classification shall not be graded above Substandard, regardless of the total score for the product.

(j) **Eye** means the blossom cup of the pineapple that is normally removed during processing (see blemish).

(k) **Extraneous vegetable material (EVM)** means any objectionable vegetable material regardless of size, from other than the pineapple fruit, which is harmless.

(l) Flavor and odor:

- (1) Good flavor and odor** means that the flavor and odor is normal for canned pineapple and is free from objectionable flavors and odors of any kind.
- (2) Fairly good flavor and odor** means that the flavor and odor may be lacking in good flavor and odor, but is free from objectionable flavors and odors of any kind.

(m) Mashed (in styles other than cube or crushed) means a unit that has lost its normal shape as evidenced by marks of mechanical injury. A unit that has lost its normal shape because of ripeness and which bears no mark of mechanical injury shall not be considered as mashed.

(n) Porosity means the degree of freedom from air spaces in the pineapple unit that gives a spongy texture.

(o) Sample unit size means the amount of product specified to be used for grading.

(p) Shell means all the outer layer of the fruit that is normally removed during processing (see blemish).

(q) Tartness means the taste sensation that is biting, sharp, and sour which is characteristic of the pineapple fruit.

(1) Excessively tart means that more than 1.35 g of acid is present in 100 mL of the drained liquid.

(2) Not excessively tart means that not more than 1.35 g of acid is present in 100 mL of the drained liquid.

(r) Trim means the degree of impairment of the pineapple units from the paring, coring, cutting or trimming process.

(1) Insignificantly trimmed means any trimming that is noticeable but of lesser degree than slightly trimmed.

(2) Slightly trimmed (applies only to whole, slices, or half slices styles) means that the portion trimmed away approximates 3 percent to not more than 5 percent of the apparent physical bulk of the perfectly formed unit and if such trimming materially affects the normal circular shape of the outer or inner edge of the unit.

- (3) **Excessively trimmed in whole, slices, or half slices styles** means that the portion trimmed away exceeds 5 percent of the apparent physical bulk of the perfectly formed unit and if such trimming destroys the normal circular shape of the outer or inner edge of the unit. In broken slices, spears, or tidbits styles means that the normal shape of the unit is destroyed by trimming.
- (s) **Uniformity of size and shape** is not scored for crushed style. The other three factors (color, defects, and character) are scored and the total is multiplied by 100 and divided by 80, dropping any fractions to determine the total score for crushed style canned pineapple. For broken slices style, this quality factor may be scored no higher than 15 points. The four factors (color, uniformity of size and shape, defects, and character) are scored and the total is multiplied by 100 and divided by 95, dropping any fractions to determine the total score for broken slices.
- (1) **Radial axis in whole, slices, and half slices styles**, means the measurement along the radius from the inside arc to the outside arc.
- (2) **Length:**
- (i) **in tidbits and chunks styles** means the measurement along the radius from the inside arc to the outside arc.
- (ii) **in spears style** means the longitudinal measurement of the spear.
- (3) **No. 8 Sieve** means the meshes of a sieve designated in the American Society for Testing and Materials (ASTM) Standard E 11, Standards for Specifications for Wire Cloth Sieves for Testing Purposes.
- (4) **Practically uniform in size and shape** means for the following styles:
- (i) **Whole.** The maximum radial axis of the cylinder does not exceed the minimum radial axis of the cylinder by more than 6 mm (0.25 in). The cylinder may be cracked but not broken into separate pieces.
- (ii) **Slices.** The diameter of the largest slice does not exceed the diameter of the smallest slice by more than 2 mm (0.08 in). The thickest slice does not exceed the thinnest slice by more than 2 mm (0.08 in) in thickness. The maximum radial axis of any slice does not exceed the minimum radial axis of the same slice by more than 3 mm (0.12 in). The drained weight of the largest slice is not more than 1.4 times the drained weight of

the smallest slice.

- (iii) **Tidbits.** Not more than 7-1/2 percent of the drained weight may consist of units each of which weighs less than three-fourths as much as the average weight of all the untrimmed tidbits.
 - (iv) **Chunks.** None of the units may have a longest dimension (along any edge) greater than 38 mm (1.5 in). Not more than 10 percent of the drained weight consists of pieces weighing less than 5 g (0.18 oz) each.
 - (v) **Cubes.** Not more than an aggregate of 10 percent of the drained weight may consist of units of such size that they pass through the meshes of a sieve with (5/16 in) square openings, and pieces weighing more than 3 g (0.11 oz) each.
 - (vi) **Spears.** The units are of substantially equal length. Not more than 10 percent, by count, of the units or not more than one unit in a container of less than 10 units, may be less than 19 mm (0.75 in) or more than 45 mm (1.75 in) in the longest edge dimension other than the longitudinal measurement of the spear. The drained weight of the largest spear is not more than 1.4 times the weight of the smallest spear.
 - (vii) **Half slices.** The diameter of the largest half slice does not exceed the diameter of the smallest half slice by more than 2 mm (0.08 in). The thickest half slice does not exceed the thinnest half slice by more than 2 mm (0.08 in). The drained weight of the largest half slice is not more than 1.75 times the drained weight of the smallest half slice (except for an occasional broken piece due to splitting or an occasional whole slice not quite completely cut through).
- (5) **Reasonably uniform in size and shape** (applies to all styles except broken and crushed styles). Except for half slices style, the applicable styles of canned pineapple that fall into this classification, shall not be graded above U.S. Grade B, regardless of the total score for the product. Reasonably uniform in size and shape has the following meanings with respect to style:
- (i) **Whole.** The maximum radial axis of the cylinder does not exceed the minimum radial axis of the cylinder by more than 10 mm (0.39 in). The cylinder may be cracked but not broken into

separate pieces.

- (ii) **Slices.** The diameter of the largest slice does not exceed the diameter of the smallest slice by more than 3 mm (0.12 in) in thickness. The maximum radial axis of any slice does not exceed the minimum radial axis of the same slice by more than 6 mm (0.25 in). The drained weight of the largest slice is not more than 1.4 times the drained weight of the smallest slice.
- (iii) **Tidbits.** Not more than 15 percent of the drained weight may consist of units each of which weighs less than three-fourths as much as the average weight of all the untrimmed tidbits.
- (iv) **Chunks.** None of the units may have a longest dimension (along any edge) greater than 38 mm (1.5 in). Not more than 15 percent of the drained weight consists of pieces weighing less than 5 g (0.18 oz) each.
- (v) **Cubes.** Not more than 10 percent of the drained weight may consist of units of such size that they pass through the meshes of a sieve with 8 mm (0.31 in) square openings. Not more than 15 percent of the drained weight may consist of pieces weighing more than 3 g (0.11 oz) each.
- (vi) **Spears.** The units are of reasonably uniform length. Not more than 20 percent, by count, of the units or not more than one unit in a container of less than 5 units, may be less than 19 mm (0.75 in) or more than 45 mm (1.75 in) in the longest edge dimension other than the longitudinal measurement of the spear. The drained weight of the largest spear is not more than 1.4 times the weight of the smallest spear.
- (vii) **Half slices.** The diameter of the largest half slice does not exceed the diameter of the smallest half slice by more than 3 mm (0.12 in). The thickest half slice does not exceed the thinnest half slice by more than 3 mm (0.13 in) in thickness. The drained weight of the largest half slice is not more than 1.75 times the drained weight of the smallest half slice (except for an occasional broken piece due to splitting or occasional whole slice not quite completely cut through). Product that falls within this classification shall not be graded above U.S. Grade C, regardless of the total score for the product.

- (6) **Fairly uniform in size and shape** (applies only to the style of half slices) means that the units fail to meet the requirements of **reasonably uniform in size and shape** and shall not be graded above U.S. Grade C, regardless of the total score for the product. The drained weight of the largest half slice is not more than 1.75 times the weight of the smallest half slice (except for an occasional broken piece due to splitting or an occasional whole slice not quite completely cut through).
- (7) **Not uniform in size and shape** (applies only to broken slices style) means:
- (i) Not more than 10 percent of the drained weight may consist of pieces having an arc of less than 90 degrees.
 - (ii) Not more than 5 percent of the drained weight may consist of pieces that measure in thickness less than 8 mm (0.31 in) or more than 25 mm (1 in); or pieces that measure less than 19 mm (0.75 in) in width as measured from the outer edge to the inner edge; and
 - (iii) Not more than 5 percent of the drained weight may consist of broken slices having an outside diameter differing by as much as 10 mm (0.39 in) from those present in the greatest proportion by weight.
- (8) **Poor uniformity of size and shape** (applies to all styles except crushed style) means canned pineapple which fails to meet in some respect; **reasonably uniform in size and shape, fairly uniform in size and shape, or not uniform in size and shape**, as applicable for the style. Products that falls into this classification, shall not be graded above Substandard, regardless of the total score for the product.
- (t) **Unit** means one whole cylinder, slice, half slice, broken slice, spear, tidbit, chunk, cube or a specified weight of crushed pineapple.

§52.1714 Recommended sample unit sizes.

The requirements for all factors of quality and analysis are based on the following:

- (a) The entire contents of a container;

- (b) A representative portion of the contents of a container;
- (c) A combination of the contents of two or more containers of the same item; or
- (d) A representative portion of processed product stored or held in bulk containers.

§52.1715 Brix measurements.

Cut-out requirements for liquid packing media in canned pineapple are not incorporated in the grades of the finished product since sirup or any other liquid medium, as such, is not a factor of quality for the purposes of these grades. The cut-out Brix measurements, as applicable to the respective designations, are as follows:

TABLE I

PACKING MEDIA DESIGNATIONS

Designations	Brix measurement
Extra heavy sirup; extra heavily sweetened pineapple juice and water; or extra heavily sweetened pineapple juice.	22° or more, but not more than 35°
Heavy sirup; heavily sweetened pineapple juice and water; or heavily sweetened pineapple juice.	18° or more, but less than 22°
Light sirup; lightly sweetened pineapple juice and water; or lightly sweetened pineapple juice.	14° or more, but less than 18°
Slightly sweetened water; extra light sirup; slightly sweetened pineapple juice and water; or slightly sweetened pineapple juice.	10° or more, but less than 14°
In water (except crushed style).	Not applicable
In pineapple juice.	Not applicable
In pineapple juice and water.	Not applicable
In clarified pineapple juice.	Not applicable
Artificially sweetened.	Not applicable

§52.1716 Fill of container for crushed style canned pineapple.

- (a)** The standard of fill of container for canned pineapple is a fill of not less than 90 percent of the total water capacity of the container. Crushed style canned pineapple that does not meet this requirement is **Below Standard in Fill**.
- (b)** The recommended fill of container for canned pineapple, other than crushed style canned pineapple, 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 of canned pineapple be 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.

§52.1717 Minimum drained weights for canned crushed pineapple.

- (a) General.** The minimum drained weights for crushed style canned pineapple are not incorporated in the grades of the finished product since drained weight is not a factor of quality for the purpose of these grades; however, minimum drained weights for crushed style canned pineapple other than **heavy pack** or **solid pack** are standards of quality, and minimum drained weights for crushed style **heavy pack** and **solid pack** canned pineapple are standards of identity under the Federal Food, Drug, and Cosmetic Act. Crushed style canned pineapple, other than **heavy pack** or **solid pack**, which is less than 63 percent of the net weight of the contents of the container is:

 - (1)** Below standard in quality, good food -- not high grade; or
 - (2)** Below standard in quality, contains excess liquid.
- (b)** The minimum drained weights for crushed canned pineapple are shown in Table II of this section.

TABLE II
MINIMUM DRAINED WEIGHTS FOR CRUSHED STYLE CANNED PINEAPPLE

Container	Other than heavy pack or solid pack crushed.	Heavy pack crushed.	Solid pack crushed.
Any Container Size	Drained fruit: not less than 63 percent, by weight, of net contents.	Drained fruit: not less than 73 percent but less than 78 percent, by weight, of net contents.	Drained fruit: not less than 78 percent of net contents.

§52.1718 Recommended minimum drained weights for canned pineapple (other than crushed style canned pineapple).

- (a) There are no recommended drained weight minimums for whole style canned pineapple since fill for this style is based on volume.
- (b) **General.** The recommended minimum drained weights for canned pineapple in styles other than crushed and whole are based on equalization of the product 15 days or more after the product has been canned. The recommended minimum drained weights for canned pineapple in styles other than crushed and whole are not incorporated in the grades of the finished product, since drained weight is not a factor of quality for the purposes of these grades.
- (c) Method for ascertaining drained weight in canned pineapple (including canned crushed pineapple). The drained weight is determined by emptying the contents of a container upon a United States Standard No. 8 circular sieve of proper diameter 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 pineapple less the weight of the dry sieve. A sieve 8 inches in diameter is used for the equivalence of No. 3 size cans (404 X 414) and smaller, and a sieve 12 inches in diameter is used for containers larger than the equivalent of the No. 3 can.
- (d) Recommended minimum drained weights of canned pineapple in styles other than crushed or whole style are shown in Table III of this section.

TABLE III
RECOMMENDED MINIMUM DRAINED WEIGHTS FOR STYLES OF
CANNED PINEAPPLE

- OTHER THAN CRUSHED OR WHOLE STYLE -

Container Designation	Container Dimension	Style	With sirup density 14 Brix or more	With sirup density less than 14 Brix
	(inches)		(ounces)	(ounces)
No. 1 Flat	307 X 203	-All styles-	4.9	4.7
8 oz. Tall	211 X 304	-All styles-	5.0	4.8
211 Cyl.	211 X 414	-All styles-	7.7	7.4
No. 1-1/4	401 X 207.5	-All styles-	8.7	8.2
No. 1-1/2	307 X 309	-All styles-	9.4	8.9
No. 2	307 X 409	-All styles-	12.3	11.7
No. 2-1/2	401 X 411	-All styles-	17.8	17.0
No. 10	603 X 700	-Chunks, Tidbits-	65.7	63.6
No. 10	603 X 700	-Slices-	61.5	59.5
No. 10	603 X 700	-Half slices and Broken slices-	62.5	60.5
No. 10	603 X 700	-Cubes-	67.4	64.1

- (e) Conformance with the recommended minimum drained weights for canned pineapple other than crushed or whole style 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 minimum drain weight recommendations if the following criteria are met:
 - (1) The average of the drained weights from all of the containers in the sample 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 minimum drained weights are within the range of variability for good commercial practice.

§52.1719 Grades.

- (a) **U.S. Grade A** is the quality of canned pineapple that meets the applicable requirements of Tables IV and VII.
- (b) **U.S. Grade B** is the quality of canned pineapple that meets the applicable requirements of Tables IV and VII.
- (c) **U.S. Grade C** is the quality of canned pineapple that meets the applicable requirements of Tables V and VI.
- (d) **Substandard** is the quality of canned pineapple that fails to meet the requirements for **U.S. Grade B or U.S. Grade C**, as applicable for the style.

§52.1720 Factors of quality and analysis.

- (a) The grade of a lot of canned pineapple is based on evaluation and analysis of the product for the following scoreable quality, and non-scoreable quality and analytical factors:
 - (1) **Color;**
 - (2) **Uniformity of size and shape (except crushed style);**
 - (3) **Defects;**
 - (4) **Character;**
 - (5) **Flavor and odor; and**
 - (6) **Tartness.**

- (b) The relative importance of each scoreable quality factor is expressed numerically on the scale of 0 to 100. The maximum number of points that may be given each factor is:

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

- (c) The essential variations within each scoreable quality factor are so described that the value may be determined for each factor and expressed numerically. The numerical range for the rating of each factor is inclusive (for example, **24 to 26 points** means 24, 25, or 26 points) and the score points shall be prorated relative to the degree of excellence for each scoreable quality factor.

§52.1721

Requirements for grades.

TABLE IV
CANNED PINEAPPLE - WHOLE, SLICES, SPEARS
TIDBITS, CHUNKS, CUBES

Quality Factors	Factor Description	Grade	Score Point Range
Color	Good	"A"	27 - 30
	Reasonably Good	"B"	24 - 26 ^{1/}
	Poor	"SStd"	0 - 23 ^{2/}
Uniformity of Size and Shape	Practically Uniform	"A"	18 - 20
	Reasonably Uniform	"B"	16 - 17 ^{1/}
	Poor Uniformity	"SStd"	0 - 15 ^{2/}
Defects	Practically Free	"A"	18 - 20
	Reasonably Free	"B"	16 - 17 ^{1/}
	Excessive	"SStd"	0 - 15 ^{2/}
Character	Good	"A"	27 - 30
	Reasonably Good	"B"	24 - 26 ^{1/}
	Poor	"SStd"	0 - 23 ^{2/}
Total Score (Range)		"A"	90 - 100 points
		"B"	80 - 89 points
		"SStd"	0 - 79 points
Flavor and Odor		"A"	Good
		"B"	Fairly Good
		"SStd"	Off Flavor
Tartness		"A"	Not Excessively Tart
		"B"	Not Excessively Tart
		"SStd"	Excessively Tart

^{1/}
^{2/}

Cannot be graded above U.S. Grade B, regardless of the total score for the product.
 Cannot be graded above Substandard, regardless of the total score for the product.

TABLE V
CANNED PINEAPPLE - BROKEN SLICES

Quality Factors	Factor Description	Grade	Score Point Range
Color	Good	"C"	27 - 30 <u>1/</u>
	Reasonably Good		24 - 26 <u>1/</u>
	Fairly Good		21 - 23 <u>1/</u>
	Poor	"SStd"	0 - 20 <u>2/</u>
Uniformity of Size and Shape	Not Uniform	"C"	14 - 15 <u>1/</u>
	Poor Uniformity	"SStd"	0 - 13 <u>2/</u>
Defects	Practically Free	"C"	18 - 20 <u>1/</u>
	Reasonably Free		16 - 17 <u>1/</u>
	Fairly Free		14 - 15 <u>1/</u>
	Excessive	"SStd"	0 - 13 <u>2/</u>
Character	Good	"C"	27 - 30
	Reasonably Good		24 - 26 <u>1/</u>
	Fairly Good		21 - 23 <u>1/</u>
	Poor	"SStd"	0 - 20 <u>2/</u>
Total Score Range <u>3/</u>		"C"	73 - 100 points
		"SStd"	0 - 72 points
Flavor and Odor	"C"		Good
			Fairly Good
	"SStd"		Off Flavor
Tartness	"C"		Not Excessively Tart
			Not Excessively Tart
	"SStd"		Excessively Tart

- 1/ Cannot be graded above U.S. Grade C, regardless of the total score for the product.
- 2/ Cannot be graded above Substandard, regardless of the total score for the
- 3/ To determine the total score, the four factors (Color, Uniformity, Defects, and Character) are scored and the total is multiplied by 100 and divided by 95, dropping any fractions.

TABLE VI
CANNED PINEAPPLE - HALF SLICES

Quality Factors	Factor Description	Grade	Score Point Range
Color	Good	"C"	27 - 30 ^{1/}
	Reasonably Good		24 - 26 ^{1/}
	Fairly Good		21 - 23 ^{1/}
	Poor	"SStd"	0 - 20 ^{2/}
Uniformity of Size and Shape	Practically Uniform	"C"	18 - 20 ^{1/}
	Reasonably Uniform		16 - 17 ^{1/}
	Fairly Uniform		14 - 15 ^{1/}
	Poor Uniformity	"SStd"	0 - 13 ^{2/}
Defects	Practically Free	"C"	18 - 20 ^{1/}
	Reasonably Free		16 - 17 ^{1/}
	Fairly Free		14 - 15 ^{1/}
	Excessive	"SStd"	0 - 13 ^{2/}
Character	Good	"C"	27 - 30 ^{1/}
	Reasonably Good		24 - 26 ^{1/}
	Fairly Good		21 - 23 ^{1/}
	Poor	"SStd"	0 - 20 ^{2/}
Total Score Range		"C"	70 - 100 points
		"SStd"	0 - 69 points
Flavor and Odor		"C"	Good or Fairly Good
		"SStd"	Off Flavor
Tartness		"C"	Not Excessively Tart
		"SStd"	Excessively Tart

^{1/} Cannot be graded above U.S. Grade C, regardless of the total score for the product.

^{2/} Cannot be graded above Substandard, regardless of the total score for the

TABLE VII
CANNED PINEAPPLE - CRUSHED

Quality Factors	Factor Description	Grade	Score Point Range
Color	Good	"A"	27 - 30
	Reasonably Good	"B"	24 - 26 ^{1/}
	Poor	"SStd"	0 - 23 ^{2/}
Defects	Practically Free	"A"	18 - 20
	Reasonably Free	"B"	16 - 17 ^{1/}
	Excessive	"SStd"	0 - 15 ^{2/}
Character	Good	"A"	27 - 30
	Reasonably Good	"B"	24 - 26 ^{1/}
	Poor	"SStd"	0 - 23 ^{2/}
Total Score (Range) ^{3/}		"A"	90 - 100 points
		"B"	80 - 89 points
		"SStd"	0 - 79 points
Flavor and Odor		"A"	Good
		"B"	Fairly Good
		"SStd"	Off Flavor
Tartness		"A"	Not Excessively Tart
		"B"	Not Excessively Tart
		"SStd"	Excessively Tart

^{1/} Cannot be graded above U.S. Grade B, regardless of the total score for the product.

^{2/} Cannot be graded above Substandard, regardless of the total score for the product.

^{3/} To determine the total score, the other three factors (Color, Defects, and Character are scored and the total is multiplied by 100 and divided by 80, dropping any fractions.

§52.1722 Sample size.

The sample size used to determine whether canned pineapple meets the requirements of these standards shall be as specified in the sampling plans and procedures 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).

§52.1723 Lot quality and analytical requirements.

A lot of canned pineapple is considered as meeting the quality and analytical requirements if:

- (a)** The requirements specified in Tables IV through VII, as applicable, are met; and
- (b)** The sampling plans and procedures in 7 CFR 52.1 through 52.83 are met.

Dated: January 24, 1990

/s/ _____

Kenneth C. Clayton
Acting Administrator