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Inspection
Division

United States Standards for Grades of Canned Sauerkraut

Effective January 20, 2017

This issue of the United States Standards for Grades of Canned Sauerkraut (81 FR 93572) supersedes the previous issue which has been in effect since May 13, 1963.

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 fresh and processed fruits, vegetables, and specialty crops 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 U.S. grade standards and inspection instructions for all fresh and processed fruits, vegetables, and specialty crops are available on the internet and upon request at the address below. These documents provide detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the U.S. Department of Agriculture (USDA) after careful consideration of all data and views submitted during rulemaking. The Department welcomes suggestions for improving the standards in future revisions. Comments may be submitted to, and copies of standards and inspection instructions obtained from:

Director, Specialty Crops Inspection Division
Specialty Crops Program,
USDA, Agricultural Marketing Service
1400 Independence Avenue, SW, STOP 0240
Washington, D.C. 20250

Authority: 7 U.S.C. 1621-1627.

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.

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Product Description, Styles, and Grades

§52.2951 Product description.

Canned (or packaged) sauerkraut hereinafter referred to as canned kraut, is prepared from clean, sound, well matured heads of the cabbage plant (*Brassica oleracea var. capitata L.*) which have been properly trimmed and cut; to which salt is added and which is cured by natural fermentation. The product may or may not be packed with pickled peppers, pimentos, tomatoes, or contain other flavoring ingredients to give the product specific flavor characteristics. The product (1) may be canned by processing sufficiently by heat to assure preservation in hermetically sealed containers; or (2) may be packaged in sealed containers and preserved with or without the addition of benzoate of soda or any other ingredient permissible under the provisions of the Federal Food, Drug, and Cosmetic Act or applicable State laws or regulations.

§52.2952 Styles of canned kraut.

- (a) **Shredded** means canned kraut which has been prepared from cabbage cut into shreds.
- (b) **Chopped** means canned kraut which has been prepared from cabbage that is cut or chopped into small pieces.

§52.2953 Grades of canned kraut.

- (a) **U.S. Grade A** is the quality of canned kraut that possesses a good color; that is well cut; that is practically free from defects; that possesses a good character; that possesses a good flavor; and that for those factors which are scored in accordance with the scoring system outlined in this subpart, the total score is not less than 90 points: *Provided*, That the canned kraut may possess a reasonably good color, scoring not less than 25 points, may be reasonably well cut, may possess a reasonably good character, and may be reasonably free from minor defects, if the total score is not less than 90 points.
- (b) **U.S. Grade B** is the quality of canned kraut that possesses a reasonably good color; that is reasonably well cut; that is reasonably free from defects; that possesses a reasonably good character; that possesses a reasonably good flavor; and that for those factors which are scored in accordance with the scoring system outlined in this subpart, the total score is not less than 80 points: *Provided*, That the canned kraut may be fairly well cut, if the total score is not less than 80 points.
- (c) **U.S. Grade C** is the quality of canned kraut that possesses a fairly good color; that is fairly well cut; that is fairly free from defects; that possesses a fairly good character; that possesses a fairly good flavor; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 70 points.
- (d) **Substandard** is the quality of canned kraut that fails to meet the requirements of

U.S. Grade C.

Fill of Container and Drained Weights

§52.2954 Recommended fill of container.

The 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 purpose of these grades. It is recommended that each container of canned kraut be filled as full as practicable with the kraut and that the kraut and packing medium shall fill the container to not less than 95 percent of its total capacity.

§52.2955 Recommended minimum drained weight.

The minimum drained weight recommendations in Table No. 1 of this subpart are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purpose of these grades. The drained weight of canned kraut is determined by emptying the contents of the container upon a United States Standard No. 8 sieve of proper diameter so as to distribute the product evenly, inclining the sieve to facilitate drainage, and allow draining for two minutes. The drained weight of kraut is the weight of the sieve and the drained kraut less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No. 2 1/2 size can (401 x 411) and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the No. 2 1/2 size can.

§52.2956 Compliance with recommended minimum drained weights.

Compliance with the recommended minimum drained weights for canned kraut is determined by averaging the drained weights of all containers which are representative of a specific lot. Such lot is considered as meeting recommendations, if:

- (a) At least one-half of the containers meet the recommended minimum drained weight;
- (b) The drained weights of the containers which do not meet the recommended minimum drained weight are within the range of variability of good commercial practice; and
- (c) The average drained weight of all the containers which are representative of the lot does not fall below recommended minimum drained weight.

**Table No. 1
Recommended Minimum Drained Weights for Canned Kraut**

Container size or designation	Overall dimensions		Minimum drained weight
	Diameter	Height	
Metal containers:	Inches	Inches	Avdp. ounces
8Z tall	2-11/16	3-4/16	6.7
No. 1 picnic	2-11/16	4	8.5
No. 300	3	4-7/16	12.0
No. 1 tall	3-1/16	4-11/16	13.0
No. 303	3-3/16	4-4/16	13.2
No. 95	3-7/16	4	14.0
No. 2	3-7/16	4-9/16	16.0
No. 2 1/2	4-1/16	4-11/16	23.0
No. 10	6-3/16	7	80.0
	Water capacity		
Glass containers:	Fluid ounces		Avdp. ounces
8 ounce jar	8.1		5.5
Pint jar	16.5		11.2
No. 303 jar	17.0		11.6
1 1/2 pint jar	24.5		16.7
Quart jar	32.6		22.2
Containers (other than metal) not listed above.¹			

¹ Not less than 68 percent of the water capacity (fluid ounce measure at 68°F) of the container.

Factors of Quality

§52.2957 Ascertaining the grade.

(a) **General.** In addition to considering other requirements outlined in the standards, the following quality factors are evaluated in ascertaining the grade of the product:

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

Factors:	Points
Color	30
Cut	10
Defects	20
Character	10
Flavor	30
Total Score	100

§52.2958 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for such factors and expressed numerically. The numerical range within each factor which is scored is inclusive (for example, 18 to 20 points means 18, 19, or 20 points).

§52.2959 Color.

(a) General. The color of canned kraut has reference to the predominating and characteristic appearance of the shreds or pieces and to the brightness of the product.

(1) Kraut model No. 1 and kraut model No. 2 means the U.S.D.A. kraut models illustrating the color of canned kraut referred to in this section.

(2) Information regarding kraut model No. 1 and kraut model No. 2 may be obtained by writing to the:

Specialty Crops Inspection Division
Specialty Crops Program,
USDA, Agricultural Marketing Service
1400 Independence Avenue, SW, STOP 0240
Washington, D.C. 20250

(b) “A” classification. Canned kraut that possesses a good color may be given a score of 27 to 30 points.

Good color means that the canned kraut possesses a bright, practically uniform, typical white to light cream general appearance, characteristic of properly prepared and properly processed canned kraut equal to or better than kraut model No. 1.

(c) “B” classification. If the canned kraut possesses a reasonably good color a score of 24 to 26 points may be given. Canned kraut that scores less than 25 points in this classification shall not be graded above U.S. Grade B, regardless of

the total score for the product (this is a partial limiting rule).

Reasonably good color means that the canned kraut possesses a reasonably bright, reasonably uniform, typical cream to light straw general appearance, characteristic of properly prepared and properly processed canned kraut equal to or better than kraut model No. 2.

- (d) **“C” classification.** Canned kraut that possesses a fairly good color may be given a score of 21 to 23 points. Canned kraut that scores in this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good color means that the canned kraut may possess a dark straw, slightly green, or yellowish general appearance and may be dull or slightly variable but is not off color.

- (e) **“SStd” classification.** Canned kraut that fails to meet the requirements of paragraph (d) of this section or is definitely dark or has a pink tint or is off color for any reason may be given a score of 0 to 20 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.2960 Cut.

- (a) **General.** The factor of cut has reference to uniformity of the shreds and of the chopped pieces in canned kraut and to the length of the shreds in shredded kraut.

- (b) **“A” classification.** Canned kraut that is well cut may be given a score of 9 or 10 points.

Well cut means with respect to shredded kraut, that the shreds are uniform in thickness and that the appearance of the product is not more than slightly affected by the presence of short or irregular cut pieces, and with respect to chopped kraut, that the pieces are uniform in size and that the presence of pieces markedly smaller or larger than the predominant size of pieces does not more than slightly affect the appearance of the product.

- (c) **“B” classification.** If the canned kraut is reasonably well cut, a score of 8 points may be given.

Reasonably well cut means with respect to shredded kraut, that the shreds are reasonably uniform in thickness and that the appearance of the product is not materially affected by the presence of short or irregular cut pieces, and with respect to chopped kraut, that the pieces are reasonably uniform in size and that the presence of pieces markedly smaller or larger than the predominant size of

pieces does not materially affect the appearance of the product.

- (d) **“C” classification.** Canned kraut that is fairly well cut may be given a score of 7 points. Canned kraut that scores in this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule).

Fairly well cut means with respect to shredded kraut that the presence of very short or very fine pieces or large and irregular pieces, and with respect to chopped kraut that the presence of very fine pieces or large and irregular pieces does not seriously affect the appearance of the product.

- (e) **“SStd” classification.** Canned kraut that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 6 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.2961 Defects.

- (a) **General.** Defects refers to the degree of freedom from coarse pieces of leaves, large and coarse pieces of core material, and blemished, spotted, or otherwise dark or discolored shreds or pieces in canned kraut.

(1) **Minor defects** mean large or coarse pieces of leaves and large or coarse pieces of core material in canned kraut.

(2) **Major defects** mean blemished, spotted, or otherwise discolored shreds or pieces of leaves or core material in canned kraut.

- (b) **“A” classification.** Canned kraut that is practically free from defects may be given a score of 18 to 20 points.

Practically free from defects means that minor defects may be present that do not materially affect the appearance or eating quality and that major defects may be present that do not more than slightly affect the appearance or eating quality of the product.

- (c) **“B” classification.** If the canned kraut is reasonably free from defects, a score of 16 or 17 points may be given. Canned kraut that falls into this classification on account of the presence of major defects shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule).

Reasonably free from defects means that minor and major defects may be present that do not materially affect the appearance or eating quality of the product.

- (d) **“C” classification.** Canned kraut that is fairly free from defects may be given a

score of 14 or 15 points. Canned kraut that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly free from defects means that minor and major defects may be present that do not seriously affect the appearance or eating quality of the product.

- (e) **“SStd” classification.** Canned kraut that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.2962 Character.

- (a) **General.** Character refers to the condition of the product and the tendency of kraut to be firm and easy to cut.

- (b) **“A” classification.** Canned kraut that possesses a good character may be given a score of 9 or 10 points.

Good character means that the kraut is crisp and firm.

- (c) **“B” classification.** If the canned kraut possesses a reasonably good character, a score of 8 points may be given.

Reasonably good character means that the kraut is reasonably crisp and reasonably firm.

- (d) **“C” classification.** Canned kraut that possesses a fairly good character may be given a score of 7 points. Canned kraut that scores in this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good character means that the kraut may lack crispness, may be soft or slightly tough, but is not excessively tough or excessively soft or mushy.

- (e) **“SStd” classification.** Canned kraut that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 6 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§52.2963 Flavor.

- (a) **General.** The flavor of kraut depends on a typical lactic acid fermentation of the product which is controlled, in part, by the amount of salt present. Kraut of any grade above substandard shall test within the following limits:

Acidity (calculated as lactic acid)	1.0% minimum
Salt	1.3% minimum
Salt	2.5% maximum

- (b) **“A” classification.** Canned kraut that possesses a good flavor may be given a score of 27 to 30 points.

Good flavor means that the product possesses a good characteristic kraut flavor which is free from off flavors and off odors of any kind.

- (c) **“B” classification.** If the canned kraut possesses a reasonably good flavor, a score of 24 to 26 points may be given. Canned kraut that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule).

Reasonably good flavor means that the product possesses a reasonably good characteristic kraut flavor which is free from off flavors and off odors of any kind.

- (d) **“C” classification.** Canned kraut that possesses a fairly good flavor may be given a score of 21 to 23 points. Canned kraut that falls into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule).

Fairly good flavor means that the product possesses a fairly good kraut flavor which is free from objectionable flavors and objectionable odors which may seriously affect the eating quality of the product.

- (e) **“SStd” classification.** Canned kraut that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 20 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

Definitions: Methods of Analyses

§52.2964 Definitions of terms and methods of analyses.

- (a) **Salt** means percent, by weight, of salt (NaCl) in canned kraut. The percent salt in canned kraut may be determined by direct titration on a 10-gram sample of the packing media, after neutralization with a solution of sodium hydroxide or by adding an excess of calcium carbonate. Dilute with about 25 milliliters of distilled water and titrate with N/10 silver nitrate (AgNO₃) solution, using 0.5 milliliter of potassium chromate indicator, to the characteristic yellow-orange end point.
- (b) **Acidity** means percent, by weight, of acid, calculated as lactic, in canned kraut. The percent acidity may be determined by direct titration on a 10-gram sample of the packing media. Dilute with about 25 milliliters of distilled water and titrate with N/10 sodium hydroxide solution, using several drops of phenolphthalein indicator, to the characteristic permanent faint-pink end points.
- (c) **Methods of Analyses.** The analyses indicated in this section shall be made in accordance with methods of analyses specified in Official Methods of Analysis of the Association of Official Analytical Chemists or by any other method which gives equivalent results.

Lot Inspection and Certification

§52.2965 Ascertaining the grade of a lot.

The grade of a lot of canned kraut covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (§52.1 to §52.87; 22 F.R. 3535).

Score Sheet
§52.2966 Score sheet for canned sauerkraut.

Number, size, and kind of container			
Container marks or identification			
Label			
Net weight (ounces)			
Vacuum (inches)			
Drained weight (ounces)			
Style			
Acidity, percent (as lactic)			
Salt, percent (NaCl)			
Factors		Grade	Score Points
Color	30	"A"	27-30
		"B"	24-26 ²
		"C"	21-23 ¹
		"SStd"	0-20 ¹
Cut	10	"A"	9-10
		"B"	8
		"C"	7 ²
		"SStd"	0-6 ¹
Defects	20	"A"	18-20
		"B"	16-17 ²
		"C"	14-15 ¹
		"SStd"	0-13 ¹
Character	10	"A"	9-10
		"B"	8
		"C"	7 ¹
		"SStd"	0-6 ¹
Flavor	30	"A"	27-30
		"B"	24-26 ¹
		"C"	21-23 ¹
		"SStd"	0-20 ¹
Total Score		100	
U.S. Grade			

¹Indicates limiting rule.

²Indicates partial limiting rule.