



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Fruit and
Vegetable
Division**

**Processed
Products
Branch**

United States Standards for Grades of Bulk Sauerkraut

Effective date May 24, 1967

This is the first issue, as amended, of the United States Standards for Grades of Bulk Sauerkraut published in the **FEDERAL REGISTER** of May 24, 1967 (32 FR 7568) to become effective May 24, 1967. This issue supersedes the first issue, which has been in effect since May 24, 1935.

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:

Chief, Processed Products Branch
Fruit and Vegetable Division, AMS
U.S. Department of Agriculture
P.O. Box 96456, Rm. 0709, So. Bldg.
Washington, D.C. 20090-6456

United States Standards for Grades of Bulk Sauerkraut

| Section | Page No. |
|----------|---|
| §52.3451 | Product description. 2 |
| §52.3452 | Grades of bulk sauerkraut. 2 |
| §52.3453 | Ascertaining the grade. 2 |
| §52.3454 | Ascertaining the rating of each factor. 4 |
| §52.3455 | Color. 4 |
| §52.3456 | Cut. 4 |
| §52.3457 | Absence of Defects. 4 |
| §52.3458 | Texture. 5 |
| §52.3459 | Flavor. 5 |
| §52.3460 | Determination of acidity. 6 |
| §52.3461 | Ascertaining the grade of a lot. 6 |
| §52.3462 | Score sheet for bulk sauerkraut. 7 |

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.

§52.3451 Product description.

Bulk or barreled sauerkraut, hereinafter referred to as **sauerkraut or bulk sauerkraut** is the product of characteristic acid flavor, obtained by the full fermentation, chiefly lactic, of properly prepared and shredded cabbage in the presence of not less than 2 percent nor more than 3 percent of salt. It contains, upon completion of the fermentation, not less than 1.5 percent of acid, expressed as lactic acid.

§52.3452 Grades of bulk sauerkraut.

- (a) **U.S. Grade (First Quality)** bulk sauerkraut is of a color approximating, or is lighter than **Olive Buff** (according to Ridgway's **Color Standards and Nomenclature**), with the shreds uniformly cut to approximately 1/32-inch in thickness. The product is practically free from defects and blemishes; is of fine, crisp texture; possesses a normal, well developed, sauerkraut flavor; and scores not less than 85 points when scored according to the scoring system outline herein.
- (b) **U.S. Grade C (Second Quality)** bulk sauerkraut may have a variable straw color, but not darker than **Dark Olive Buff** (according to Ridgway's **Color Standards and Nomenclature**); the shreds may lack uniformity of thickness. The product is reasonably free from defects and blemishes; is of reasonably fine, crisp texture; possesses a normal sauerkraut flavor; and scores not less than 70 points and need not score more than 84 points when scored according to the scoring system outlined herein.
- (c) **Substandard** bulk sauerkraut is sauerkraut that fails to meet the requirements of the foregoing grades or when any one of the grading factors falls in the **D** classification.

§52.3453 Ascertaining the grade.

The grade of bulk sauerkraut may be ascertained by considering, in addition to the requirements in the definition, the following factors: Color, cut, absence of defects, texture, and flavor. The relative importance of each element has been expressed numerically on a scale of 100. The maximum number of credits that may be given for each factor is:

| Factors | Points |
|--------------------------|-----------|
| Color | 15 |
| Cut | 15 |
| Absence of defects | 10 |
| Texture | 15 |
| Flavor | <u>45</u> |
| Total Score | 100 |

§52.3454 Ascertaining the rating of each factor.

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical ranges within each factor are inclusive. For instance, the range 13 to 15 means 13, 14, and 15.

§52.3455 Color.

- (a) **"A" classification.** Sauerkraut that possesses a color approximating, or is lighter than **Olive Buff** (according to Ridgway's **Color Standards and Nomenclature**), may be given a credit of 13 to 15 points.
- (b) **"C" classification.** If the sauerkraut possesses a color ranging from **Olive Buff** to (but not darker than) **Dark Olive Buff**, or is slightly greenish or yellowish, or possesses a tint of light brown, a credit of 10 to 12 points may be allowed. Sauerkraut that falls in this classification shall not be graded above **U.S. Grade C (Second Quality)**, regardless of the total score for the product.
- (c) **"SStd" classification.** If the sauerkraut possesses a decidedly dark, or pink tinted color, a credit within the range of zero to nine points may be allowed.

§52.3456 Cut.

- (a) **"A" classification.** If the shreds of sauerkraut are uniformly cut to approximately 1/32-inch in thickness and are of a reasonable length, a credit of 13 to 15 points may be allowed.
- (b) **"C" classification.** If the cut is very irregular, the shreds being **choppy** and poorly cut, a credit of 10 to 12 points may be allowed. Sauerkraut that falls in this classification may not be graded above U.S. Grade C (Second Quality), regardless of the total score for the product.
- (c) **"SStd" classification.** Sauerkraut that is very uneven in cut, containing decidedly thick or short shreds, may be given a credit of not more than nine points.

§52.3457 Absence of Defects.

- (a) **General.** The factor of absence of defects refers to defects such as large pieces of leaves, dead leaves, large pieces of core, spotted shreds, or other defects.

- (b) **"A" classification.** Sauerkraut that is practically free from the defects mentioned may be given a credit of nine to 10 points.
- (c) **"C" classification.** If the product is reasonably free from the defects mentioned, a credit of six to eight points may be allowed. Sauerkraut that falls in this classification shall not be graded above **U.S. Grade C (Second Quality)**, regardless of the total score for the product.
- (d) **"SStd" classification.** If pieces of dead leaves, large pieces of core, spotted shreds, or any similar blemishes are prominently present to the extent of injuring the appearance of the product, a credit within the range of zero to five points may be allowed.

§52.3458 Texture.

- (a) **General.** The factor of texture refers to the condition of the product and the tendency of the shreds to be firm, fresh, crisp, and easy to cut, as contradistinguished to soft or mushy.
- (b) **"A" classification.** Sauerkraut that is firm and crisp may be given a credit of 13 to 15 points.
- (c) **"C" classification.** If the product is somewhat tough, or is slightly soft, a credit of 10 to 12 points may be allowed. Sauerkraut that falls in this classification shall not be graded above **U.S. Grade C (Second Quality)**, regardless of the total score for the product.
- (d) **"SStd" classification.** If the sauerkraut is tough, or contrariwise, is soft and mushy, a credit within the range of zero to nine points may be allowed.

§52.3459 Flavor.

- (a) **"A" classification.** Sauerkraut that has a highly acid (expressed as lactic), palatable, clean, characteristic sauerkraut flavor, may be given a credit of 40 to 45 points.
- (b) **"C" classification.** If the product possesses a good sauerkraut flavor that may be suggestive of improper bacterial action, but not markedly so, it may be given a credit of 34 to 39 points. Sauerkraut that falls in this classification shall not be graded above **U.S. Grade C (Second Quality)**, regardless of the total score for the product.

- (c) **"SStd" classification.** If the flavor is poor and unpalatable from any cause (acetic, butyric, yeasty, moldy, very salty, bitter stale, or rancid), a credit within the range of zero to 33 points may be allowed.

§52.3460 Determination of acidity.

The method of titration used to determine the degree of lactic acidity in sauerkraut is as follows: Place 10 cc. of sauerkraut juice in a flask, add 40 cc. of distilled water (hydrant water contains large quantities of alkaline salts which tend to neutralize the sauerkraut acid before titration takes place). Shake the flask to mix thoroughly the sauerkraut juice and water. Add three or four drops of phenolphthalein solution. Into this mixture slowly run, drop by drop, from a burette graduated in 1/10 cc. and filled with 1/9 normal solution of sodium hydroxide, enough of the sodium hydroxide to bring a permanent pink tint to the sauerkraut juice solution, shaking the flask as the sodium hydroxide is added. As soon as the pink tint becomes permanent (at first it will fade away), note the amount of the hydroxide used, divide this number by 10, and the result is a number which is the percentage of lactic acid in the sauerkraut juice.

§52.3461 Ascertaining the grade of a lot.

The grade of a lot of bulk sauerkraut 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** (7 CFR 52.1 to 52.83).

§52.3462 Score sheet for bulk sauerkraut.

| Identification marks on packages | | | |
|--|------------|---|--|
| Net weight as indicated on package | | | |
| Percent acid | | | |
| Factors | | Score points | |
| Color | 15 | "A" 13-15 "C" 10-12 <u>1/</u> "SStd" 0-9 <u>2/</u> | |
| Cut | 15 | "A" 13-15 "C" 10-12 <u>1/</u> "SStd" 0-9 <u>2/</u> | |
| Absence of defects | 10 | "A" 9-10 "C" 6-8 <u>1/</u> "SStd" 0-5 <u>2/</u> | |
| Texture | 15 | "A" 13-15 "C" 10-12 <u>1/</u> "SStd" 0-9 <u>2/</u> | |
| Flavor | 45 | "A" 40-45 "C" 34-39 <u>1/</u> "SStd" 0-33 <u>2/</u> | |
| Total Score | <u>100</u> | | |
| Grade | | | |

- 1/ Sauerkraut that falls in this classification may not be graded above **U.S. Grade C (Second Quality)**
- 2/ Sauerkraut that falls in this classification may not be graded above Substandard.

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G.R. Grange
Deputy Administrator
Marketing Services

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