



**United States  
Department of  
Agriculture**

**Agricultural  
Marketing  
Service**

**Fruit and  
Vegetable  
Division**

**Processed  
Products  
Branch**

# **United States Standards for Grades of Frozen Hash Brown Potatoes**

**Effective date November 15, 1976**

This is the first issue, of the United States Standards for Grades of Frozen Hash Brown Potatoes published in the **FEDERAL REGISTER** of October 1, 1976 (41 FR 43385) to become effective November 15, 1976.

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 Frozen Hash Brown Potatoes

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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).

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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.

**§52.6401 Product description.**

Frozen hash brown potatoes are prepared from mature, sound, white or Irish potatoes (*Solanum tuberosum*) that are washed, peeled, sorted and trimmed to assure a clean and wholesome product. The potatoes so prepared are blanched, may or may not be fried and are shredded or diced or chopped and frozen and stored at temperatures necessary for their preservation.

**§52.6402 Styles.**

- (a) **Shredded. Shredded** means potatoes cut into thin strips with cross-sectional dimensions from 1 mm by 2 mm to 4 mm by 6 mm and formed into a solid mass before freezing.
- (b) **Diced. Diced** means potatoes cut into approximate cube shape units from 6 mm to 15 mm on an edge and loose frozen and which contain not more than 90 grams, per sample unit, of units smaller than one-half the volume of the predominant size unit.
- (c) **Chopped. Chopped** means potatoes random cut into pieces predominantly less than 32 mm in their greatest dimension and loose frozen.

**§52.6403 Grades.**

- (a) **U. S. Grade A** is the quality of frozen hash brown potatoes which has the following attributes:
  - (1) Normal flavor and odor;
  - (2) Good color;
  - (3) Practically free from defects;
  - (4) Good texture; and scores not less than 90 points when scored in accordance with the scoring system outlined in this subpart.
- (b) **U. S. Grade B** is the quality of frozen hash brown potatoes which has at least the following attributes:
  - (1) Normal flavor and odor;
  - (2) Reasonably good color
  - (3) Reasonably free from defects;

- (4) Reasonably good texture; and scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.
- (c) **Substandard** is the quality of frozen hash brown potatoes that fails to meet the requirements of Grade B.

**§52.6404 Determining the grade.**

In addition to considering the other requirements outlined in this subpart, the following quality factors are evaluated:

- (a) **Factor not rated by score points.** Flavor and odor.
- (b) **Factors rated by score points.**

The relative importance of each factor which is scored is expressed numerically on a scale of 100. The maximum points that may be given such factors are:

<b>Factors</b>	<b>Points</b>
Color .....	30
Defects .....	40
Texture .....	<u>30</u>
Total score .....	100

- (c) **Sample unit size.** Sample unit size for evaluation of quality factors shall be 450 grams (15.9 ounces) for diced and chopped styles, and 340 grams (12 ounces) for shredded style.
- (d) **Factor evaluation.**
  - (1) The factors of flavor and odor and color are determined before and after heating.
  - (2) The factor of defects is determined before heating.
  - (3) The factor of texture is determined after heating.
- (e) **Normal flavor and odor** means the characteristic flavor and odor of properly prepared potatoes. Such flavor is free from bitterness, from pronounced scorched or caramelized flavors, and from off-odors of any kind.

**§52.6405 Determining 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 determined for each factor and expressed numerically. The numerical range within each factor, which is scored, is inclusive (for example **27 to 30 points** means 27, 28, 29, or 30 points).

**§52.6406 Color.**

- (a) **"A" classification.** Frozen hash brown potatoes that have a good color may be given a score of 27 to 30 points. **Good color** means the product, as a mass before heating, has a bright, uniform white to light cream color, which may include light brown units if processing included frying of any portion of the product. Such color is not more than slightly affected by yellowish units, greenish units, grayish units, or units which are otherwise discolored. After heating, the product surface shall have a fairly uniform brown color at least as dark as USDA No. 1 but not as dark as USDA No. 4 of the USDA Color Standards for Frozen French Fried Potatoes.
- (b) **"B" classification.** Frozen hash brown potatoes that have a reasonably good color may be given a score of 24 to 26 points. Frozen hash brown potatoes that fall 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 color** means the product, as a mass before heating, has a reasonably bright, uniform white to cream color, which may include brown units if processing included frying of any portion of the product. Such color is not seriously affected by yellowish units, greenish units, grayish units, or units which are otherwise discolored. After heating, the product surface may brown only slightly or unevenly, but is not charred.
- (c) **"SStd" classification.** Frozen hash brown potatoes that fail to meet the requirement of **"B"** classification may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product ( this is a limiting rule).

**§52.6407 Defects.**

- (a) **General.** This factor is concerned with imperfections in the product, such as necrosis, crushed units, discolored eyes, and discolorations which affect its appearance or edibility.
- (b) **Minor effects.** Minor defects are imperfections which detract only slightly from the appearance or edibility of the product. Among such minor defects are:

- (1) Very light surface or internal discolorations of any size;
  - (2) Light brown surface or internal discolorations smaller in size than the area of a circle, or the volume of a sphere, of 4 mm diameter;
  - (3) Dark brown surface or internal discolorations smaller in size than the area of a circle, or the volume of a sphere, of 2 mm diameter; and
  - (4) In chopped and diced styles only, individual clusters of units which are not readily broken or separated manually, which weigh 5 grams or more but less than 10 grams.
- (c) **Major defects.** Major defects are imperfections which materially detract from the appearance or edibility of the product. Among such major defects are:
- (1) Light brown surface or internal discolorations equal to or larger in size than the area of a circle, or the volume of a sphere, of 4 mm diameter but smaller in size than the area of a circle, or the volume of a sphere, of 8 mm diameter;
  - (2) Dark brown or internal discolorations equal to or larger in size than the area of a circle, or the volume of a sphere, of 2 mm diameter but smaller in size than the area of a circle, or the volume of a sphere, of 4 mm diameter; and
  - (3) In chopped and diced styles only, individual clusters of units which are not readily broken or separated manually, which weigh 10 grams or more.
- (d) **Severe defects.** Severe defects are imperfections which seriously detract from the appearance or edibility of the product. Among such severe defects are:
- (1) Light brown surface or internal discolorations equal to or larger in size than the area of a circle, or the volume of a sphere, of 8 mm diameter;
  - (2) Dark brown surface or internal discolorations equal to or larger in size than the area of a circle, or the volume of a sphere, of 4 mm diameter; and
  - (3) Any condition of a potato unit which is offensive because of color, odor, character, or for any other reason.

- (e) **"A" classification.** Frozen hash brown potatoes that are practically free from defects may be given a score of 36 to 40 points. **Practically free from defects** means that:
- (1) Any combination of defects present may no more than slightly detract from the appearance or edibility of the product; and
  - (2) The minor, major and severe defects, that may be present in the sample unit, do not exceed the allowances set forth in Table I.
- (f) **"B" classification.** Frozen hash brown potatoes that are reasonably free from defects may be given a score of 32 to 35 points. Frozen hash brown potatoes that fall 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 free from defects** means that:
- (1) Any combination of defects present does not seriously detract from the appearance or edibility of the product; and
  - (2) The minor, major and severe defects, that may be present in the sample unit, do not exceed the allowances set forth in Table I.
- (g) **"SStd" classification.** Frozen hash brown potatoes that fail to meet the requirements of "B" classification, may be given a score of 0 to 31 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).



**TABLE I - DEFECTS**

**Maximum Defect Allowance Per Sample Unit  
(Chopped and Diced Styles - 450 grams; Shredded Style 340 grams)**

DEFECT	GRADE A	GRADE B
<b>Chopped and Diced Styles</b>		
Total Minor, Major and Severe	18	36
Total Major and Severe	9	18
Severe	2	4
Clusters <sup>1/</sup>		
Total Minor and Major	6	18
Major	2	6
<b>Shredded Style</b>		
Total Minor, Major and Severe	14	27
Total Major and Severe	7	14
Severe	2	3

<sup>1/</sup> The allowance for clusters in chopped and diced styles is in addition to the allowances for other defects that may be present.

**§52.6408 Texture.**

- (a) The factor of texture is evaluated within three minutes after heating as specified in §52.6409 and while the product is well above room temperature.
- (b) **"A" classification.** Prepared hash brown potatoes that have a good texture may be given a score of 27 to 30 points. **Good texture** means the potato units are firm and tender and the product is not more than slightly affected by units which are hard, mushy, pasty, soggy, dry or oil soaked.
- (c) **"B" classification.** Prepared hash brown potatoes that have a reasonably good texture may be given a score of 24 to 26 points. Frozen hash brown potatoes that fall 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 texture** means the potato units are reasonably firm and tender and the product is not seriously affected by units which are hard, mushy, pasty, soggy, dry, or oil soaked.

- (d) **"SStd" classification.** Frozen hash brown potatoes that fail to meet the requirements of **"B"** classification may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

**§52.6409 Methods of analyses.**

**Heating.** The sample unit or a representative portion should be heated according to the manufacturers' directions, or in a manner which will give equivalent results.

In the absence of such directions the following methods may be used: Place approximately three tablespoons of cooking oil or fat in a frying pan - enough to properly fry the sample without excessive sticking - and preheat to 175 degrees C. (347 degrees F.). Add 170 to 225 grams (6 to 8 ounces) of the product and cook for 10 to 12 minutes; turning the product once or twice during cooking. A frying pan approximately 25 centimeter (10 inches) in diameter is appropriate for this method, however any suitable frying appliance may be used which will properly cook the desired amount of product.

**§52.6410 Determining the grade of a lot.**

The grade of a lot frozen hash brown potatoes covered by these standards is determined by the procedures set forth in the **Regulations Governing Inspection and Certification of Processed Fruit and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products** (7 CFR 52.1 through 52.83).

**§52.6411 Score sheet for hash brown potatoes.**

Size and kind of container .....			
Container mark or identification .....			
Label .....			
Net contents .....			
Style .....			
Color designation .....			
Factors		Score points	
Color .....	30	"A" 27 - 30	"B" 24 - 26 <u>1/</u>
		"SStd" 0 - 23 <u>1/</u>	
Defects .....	40	"A" 36 - 40	"B" 32 - 35 <u>1/</u>
		"SStd" 0 - 31 <u>1/</u>	
Texture .....	<u>30</u>	"A" 27 - 30	"B" 24 - 26 <u>1/</u>
		"SStd" 0 - 23 <u>1/</u>	
Total score .....	100		
U. S. Grade .....			
Flavor and odor .....			

1/ Indicates limiting rule.

**Effective date.** This standard shall become effective November 15, 1976.

Dated: September 28, 1976

Donald E. Wilkinson  
 Administrator  
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