

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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STANDARD FOR QUICK FROZEN FRENCH FRIED POTATOES

CXS 114-1981

Adopted in 1981. Amended in 2019.

1. SCOPE

This Standard shall apply to quick frozen French fried potatoes which have been prepared from tubers of the species *Solanum tuberosum* L. and offered for direct consumption without further processing except for repacking if required.

2. DESCRIPTION

2.1 Product Definition

Quick frozen French fried potatoes is the product prepared from clean, mature, sound tubers of the potato plant conforming to the characteristics of the species *Solanum tuberosum* L. Such tubers shall have been sorted, washed, peeled, cut into strips, and treated as necessary to achieve satisfactory colour and fried in edible oil or fat. The treatment and frying operations shall be sufficient to ensure adequate stability of colour and flavour during normal marketing cycles.

2.2 Process Definition

2.2.1 Quick frozen French fried potatoes is the product subjected to a freezing process in appropriate equipment and complying with the conditions laid down hereafter. The freezing operation shall be carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C (0°F) at the thermal centre after thermal stabilization.

2.2.2 The recognized practice of repacking quick frozen foods under controlled conditions is permitted.

2.3 Handling Practice

The product shall be handled under such conditions as will maintain the quality during transportation, storage and distribution up to and including the time of final sale. It is recommended that the product be handled in accordance with the provisions in the *Code of Practice for the Processing and Handling of Quick Frozen Foods* (CXC 8-1976).

2.4 Presentation

2.4.1 Styles

The styles of the product shall be determined by the nature of the surface and the nature of the cross section.

2.4.1.1 Nature of the Surface

The product shall be presented in one of the following styles:

- (a) *Straight cut* - strips of potato with practically parallel sides and with smooth surfaces.
- (b) *Crinkle cut* - strips of potato with practically parallel sides and in which two or more sides have a corrugated surface.

2.4.1.2 Dimensions of the cross section

The cross sectional dimensions of strips of quick frozen French fried potatoes which have been cut on all four sides shall not be less than 5 mm when measured in the frozen condition. The quick frozen French fried potatoes within each pack shall be of similar cross sections.

The product may be identified by the approximate dimensions of the cross sections or by reference to the following system for designations:

Designation	Dimension in mm across the largest cut surface
Shoestring	5 - 8
Medium	8 - 12
Thick cut	12 - 16
Extra large	greater than 16

2.4.2 Other Styles

Any other presentation of the product, based on differing cross sections shall be permitted provided that it:

- (a) is sufficiently distinctive from other forms of presentation laid down in this Standard;
- (b) meets all other requirements of this standard;
- (c) is adequately described on the label to avoid confusing or misleading the consumer.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Composition

3.1.1 *Basic Ingredients*

- (a) Potatoes as defined in Section 2.1
- (b) Edible fats and oils as defined by the Codex Alimentarius Commission.

3.1.2 *Optional Ingredients*

- (a) Sugars (sucrose, invert sugar, dextrose, fructose, glucose syrup, dried glucose syrup) as defined by the Codex Alimentarius Commission;
- (b) Salt (sodium chloride);
- (c) Condiments, such as herbs and spices.

3.2 Quality Factors

3.2.1 *General Requirements*

Quick frozen French fried potatoes shall:

- be free from any foreign flavours and odours;
- be clean, sound and practically free from foreign matter;
- have a reasonably uniform colour;

and with respect to visual defects subject to a tolerance shall be:

- without excessive external defects such as blemishes, eyes and discolouration;
- without excessive sorting effects, such as slivers, small pieces and scrap;
- reasonably free from frying defects, such as burnt parts.

When prepared in accordance with the manufacturer's instructions quick frozen French fried potatoes shall:

- have a reasonably uniform colour;
- have a texture characteristic of the product and be neither excessively hard nor excessively soft or soggy.

3.2.2 *Analytical Requirements*

3.2.2.1 Moisture - the maximum moisture content of the whole product in the styles shoestring, medium and thick cut shall be 76% m/m; and in extra large and other styles 78% m/m.

3.2.2.2 The fat or oil extracted from the product shall have a free fatty acid content of not more than 1.5% m/m measured as oleic acid or an equivalent fatty acid value based on the predominant fatty acid in the fat or oil.

3.2.3 *Definition of Visual Defects*

3.2.3.1 **External defects** are blemishes or discolouration (either internally or on the surface) due to exposure to light, mechanical, pathological or pest agents, eye material or peeling remnants.

- (a) Minor defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peel covering an area or a circle greater than 3 mm but less than 7 mm in diameter; pale brown peel or light discolouration of any area greater than 3 mm in diameter.
- (b) Major defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peeling covering an area or a circle greater than 7 mm but less than 12 mm in diameter.
- (c) Serious defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peel covering an area or a circle of 12 mm in diameter or more.

Note:

("slight" external defects which in either area or intensity fall below the definition shown for minor defects shall be ignored)

3.2.3.2 Sorting Defects

- (a) Sliver - a very thin unit (generally an edge piece) which will pass through a slot the width of which is 50% of the minimum dimension of the nominal or normal size.
- (b) Small piece - Any unit less than 25 mm in length.
- (c) Scrap - Potato material of irregular form not conforming to the general conformation of French fried potatoes.

3.2.3.3 Frying Defects

Burnt pieces - Any unit which is dark brown and hard due to gross overfrying.

3.2.4 Standard Sample Size

The standard sample size shall be 1 kilogramme.

3.2.5 Tolerances for Visual Defects

For tolerances based on the standard sample size as specified in Section 3.2.4 the visual external defects are classified as "minor" or "major" or "serious". The tolerances in respect of external defects are dependent on the cross section of the French fried potatoes.

To be acceptable, the standard samples shall not contain units in excess of the numbers shown for the respective categories, including total, in Table 1.

TABLE 1 - Tolerances for external defects

Defect category	Number of Units Affected Cross section of strips	
	5 - 16 mm	over 16 mm
Serious	7	3
Serious + major	21	9
Total (serious + major + minor)	60	27

The tolerances for the other defects (not depending on cross section) are:

Sorting defects

Slivers	max. 12% m/m
Small Pieces and Scraps	max. 6% m/m
Total Sorting Defects	max. 12% m/m

Frying defects	max. 0.5% m/m
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3.3 Definition of "defective" for Composition and Quality Factors

Any sample unit taken in accordance with an appropriate sampling plan with an AQL 6.5 (see relevant Codex texts on methods of analysis and sampling) shall be regarded as a "defective" for the respective characteristics when:

- (a) it fails to meet any of the requirements given in Section 3.1;
- (b) it fails to meet any of the general requirements given in Section 3.2.1;
- (c) when it exceeds the tolerances for visual defects in any one or more respective defect categories in Section 3.2.5.

3.4 Lot Acceptance for Composition and Quality Factors

A lot will be considered acceptable with respect to Composition and Quality Factors when the number of "defectives" as defined in Section 3.5 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5 (see relevant Codex texts on methods of analysis and sampling). In applying the acceptance procedure each "defective" (as defined in Section 3.3(a) to (c)) is treated individually for the respective characteristics.

3.5 Definition of "defective" for Analytical Requirements

See relevant Codex texts on methods of analysis and sampling.

3.6 Lot Acceptance for Analytical Requirements

See relevant Codex texts on methods of analysis and sampling.

4. FOOD ADDITIVES

4.1 Sequestrants Maximum Level in Final Product

4.1.1 Disodium dihydrogen pyrophosphate)	
4.1.2 Tetrasodium pyrophosphate)	100 mg/kg singly or in combination
4.1.3 Ethylene diamine tetra-acetic acid)	(phosphates expressed as P ₂ O ₅)
(Ca-diNa salt))	
4.1.4 Ascorbic acid)	
4.1.5 Citric acid)	Limited by GMP
4.1.6 Malic acid)	

4.2 Processing Aids

4.2.1 Sulphite, bisulphite, metabisulphite)	50 mg/kg, singly or in combination,
(sodium or potassium salt))	expressed as SO ₂
4.2.2 Sodium hydroxide)	
4.2.3 Potassium hydroxide)	Limited by GMP
4.2.4 Citric acid)	
4.2.5 Dimethylpolysiloxane)	10 mg/kg on a fat basis

4.3 Carry-Over Principle

Section 4.1 of the *General Standard for Food Additives* (CXS 192-1995) shall apply.

5. HYGIENE

- 5.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.
- 5.2 To the extent possible in Good Manufacturing Practice, the product shall be free from objectionable matter.
- 5.3 When tested by appropriate methods of sampling and examination, the product:
- shall be free from microorganisms in amounts which may represent a hazard to health;
 - shall be free from parasites which may represent a hazard to health; and
 - shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

6. LABELLING

In addition to the requirements of the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985), the following specific provisions shall apply:

6.1 The Name of the Food

- 6.1.1 The name of the food as declared on the label shall include the designation "French Fried Potatoes" or the equivalent designation used in the country in which the product is intended to be sold.
- 6.1.2 In addition, there shall appear on the label a designation of the style as appropriate, i.e. "straight cut" or "crinkle cut" and there may also appear an indication of the approximate dimensions of the cross section or the appropriate designation, i.e. "shoestring", "medium", "thick cut" or "extra large".
- 6.1.3 If the product is produced in accordance with Section 2.4.2, the label shall contain in close proximity to the words "French Fried Potatoes" such additional words or phrases that will avoid misleading or confusing the consumer.

6.1.4 The words "Quick Frozen" shall also appear on the label, except that the term "Frozen"¹ may be applied in countries where this term is customarily used for describing the product processed in accordance with Section 2.2 of this Standard.

6.2 Additional Requirements

The packages shall bear clear directions for keeping from the time they are purchased from the retailer to the time of their use, as well as directions for cooking.

6.3 Bulk Pack

In the case of quick frozen French fried potatoes in bulk, the information required above shall either be placed on the container or be given in accompanying documents, except that the name of the food accompanied by the words "quick frozen" (the term "frozen" may be used in accordance with Section 6.1.4 of this Standard) and the name and address of the manufacturer or packer shall appear on the container.

7. PACKAGING

Packaging used for quick frozen French fried potatoes shall:

- (a) protect the organoleptic and other quality characteristics of the product;
- (b) protect the product against microbiological and other contamination;
- (c) protect the product from dehydration and, where appropriate, leakage as far as technologically practicable; and
- (d) not pass on to the product any odour, taste, colour or other foreign characteristics, throughout the processing (where applicable) and distribution of the product up to the time of final sale.

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this Standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this Standard shall be used.

¹ "Frozen": This term is used as an alternative to "quick frozen" in some English speaking countries.