

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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STANDARD FOR WHEY POWDERS

CXS 289-1995

Formerly CODEX STAN A-15-1995. Adopted in 1995. Revised in 2003.

Amended in 2006, 2010, 2018.

1. SCOPE

This Standard applies to Whey Powder and Acid Whey Powder, intended for direct consumption or further processing, in conformity with the description in Section 2 of this Standard.

2. DESCRIPTION

Whey powders are milk products obtained by drying whey or acid whey.

Whey is the fluid milk product obtained during the manufacture of cheese, casein or similar products by separation from the curd after coagulation of milk and/or of products obtained from milk. Coagulation is obtained through the action of, principally, rennet type enzymes.

Acid whey is the fluid milk product obtained during the manufacture of cheese, casein or similar products by separation from the curd after coagulation of milk and/or of products obtained from milk. Coagulation is obtained, principally, by acidification.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw materials

Whey or acid whey.

3.2 Permitted ingredients

Seed lactose¹ in the manufacture of pre-crystallized whey powder.

3.3 Composition

Whey powder:

Criteria	Minimum content	Reference content	Maximum content
Lactose ^(a)	n.s.	61.0% (m/m)	n.s.
Milk protein ^(b)	10.0% (m/m)	n.s.	n.s.
Milk fat	n.s.	2.0% (m/m)	n.s.
Water ^(c)	n.s.	n.s.	5.0% (m/m)
Ash	n.s.	n.s.	9.5% (m/m)
pH (in 10% solution) ^(d)	> 5.1	n.s.	n.s.

¹ See Standard for Sugars (CXS 212-1999).

Acid whey powder:

Criteria	Minimum content	Reference content	Maximum content
Lactose ^(a)	n.s.	61.0% (m/m)	n.s.
Milk protein ^(b)	7.0% (m/m)	n.s.	n.s.
Milk fat	n.s.	2.0% (m/m)	n.s.
Water ^(c)	n.s.	n.s.	4.5% (m/m)
Ash	n.s.	n.s.	15.0% (m/m)
pH (in 10% solution) ^(e)	n.s.	n.s.	5.1

(a) Although the products may contain both anhydrous lactose and lactose monohydrate, the lactose content is expressed as anhydrous lactose. 100 parts of lactose monohydrate contain 95 parts of anhydrous lactose.

(b) Protein content is 6.38 multiplied by the total Kjeldahl nitrogen determined.

(c) The water content does not include water of crystallization of the lactose.

(d) Or titratable acidity (calculated as lactic acid) <0.35%.

(e) Or titratable acidity (calculated as lactic acid) ≥0.35%.

In accordance with the provision of Section 4.3.3 of the *General Standard for the Use of Dairy Terms* (CXS 206-1999), whey powders may be modified in composition to meet the desired end-product composition, for instance, neutralization or demineralization. However, compositional modifications beyond the minima or maxima specified above for milk protein and water are not considered to be non-compliance with the Section 4.3.3.

4. FOOD ADDITIVES

Food additives listed in Tables 1 and 2 of the *General Standard for Food Additives* (CXS 192-1995) in Food Category 01.8.2 (Dried whey and whey products, excluding whey cheese) may be used in foods subject to this standard.

5. CONTAMINANTS

The products covered by this Standard shall comply with the maximum levels for contaminants that are specified for the product in the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995).

The milk used in the manufacture of the products covered by this Standard shall comply with the maximum levels for contaminants and toxins specified for milk by the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995) and with the maximum residue limits for veterinary drug residues and pesticides established for milk by the CAC.

6. HYGIENE

It is recommended that the products 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), the *Code of Hygienic Practice for Milk and Milk Products* (CXC 57-2004) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice. The products should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CXG 21-1997).

7. LABELLING

In addition to the provisions of the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985) and the *General Standard for the Use of Dairy Terms* (CXS 206-1999), the following specific provisions apply:

7.1 Name of the food

The name of the food shall be:

Whey powder	According to the definitions in Section 2 and compositions as specified in Section 3.3.
Acid whey powder	

The designation of products in which the fat and/or lactose contents are below or above the reference content levels specified in Section 3.3 of this Standard shall be accompanied by an appropriate qualification describing the modification made or the lactose and/or fat content, respectively, either as part of the name or in a prominent position in the same field of vision.

The term "sweet" may accompany the name of whey powder, provided that the whey powder meets the following compositional criteria:

minimum lactose:	65%
minimum protein:	11%
maximum ash:	8.5%
pH (10% solution)*:	>6

* or titratable acidity of maximum 0.16% (calculated as lactic acid).

7.2 Labelling of non-retail containers

Information required in Section 7 of this Standard and Sections 4.1 to 4.8 of the *General Standard for the Labelling of Prepackaged Foods* (CXC 1-1985) and, if necessary, storage instructions, shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the container. However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such mark is clearly identifiable with the accompanying documents.

8. METHODS OF SAMPLING AND ANALYSIS

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.