CODEX ALIMENTARIUS
INTERNATIONAL FOOD STANDARDS

Food and Agriculture Organization of the United Nations
World Health Organization

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STANDARD FOR FERMENTED MILKS

CXS 243-2003

Adopted in 2003. Revised in 2008, 2010, 2018. Amended in 2022 and 2024.

2024 Amendments

Following decisions taken at the Forty-seventh Session of the Codex Alimentarius Commission in December 2024, amendments were made in Section 4 Food additives.

2022 Amendments

Following decisions taken at the Forty-fifth Session of the Codex Alimentarius Commission in December 2022, amendments were made in Section 7.3 Labelling of non-retail containers.

1. SCOPE

This standard applies to fermented milks, that is fermented milk including, heat-treated fermented milks, concentrated fermented milks and composite milk products based on these products, for direct consumption or further processing in conformity with the definitions in Section 2 of this standard.

2. DESCRIPTION

2.1 ***Fermented milk*** is a milk product obtained by fermentation of milk, where milk may have been manufactured from products obtained from milk with or without compositional modification as limited by the provision in Section 3.3, by the action of suitable microorganisms and resulting in reduction of pH with or without coagulation (iso-electric precipitation). These starter microorganisms shall be viable, active and abundant in the product to the date of minimum durability. If the product is heat treated after fermentation, the requirement for viable microorganisms does not apply.

Certain fermented milks are characterized by specific starter culture(s) used for fermentation as follows:

Yoghurt:	Symbiotic cultures of *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus.*
Alternate culture yoghurt:	Cultures of *Streptococcus thermophilus* and any *Lactobacillus* species.
Acidophilus milk:	*Lactobacillus acidophilus.*
Kefir:	Starter culture prepared from kefir grains, *Lactobacillus kefiri*, species of the genera *Leuconostoc, Lactococcus* and *Acetobacter* growing in a strong specific relationship. Kefir grains constitute both lactose-fermenting yeasts *(Kluyveromyces marxianu*s) and non-lactose-fermenting yeasts *(Saccharomyces unisporus, Saccharomyces cerevisiae* and *Saccharomyces exiguu*s).
Kumys:	*Lactobacillus delbrueckii* subsp. *bulgaricus* and *Kluyveromyces marxianus.*

Other microorganisms than those constituting the specific starter culture(s) specified above may be added.

2.2 ***Concentrated fermented milk*** is a fermented milk the protein of which has been increased prior to or after fermentation to minimum 5.6 percent. Concentrated fermented milks includes traditional products such as Stragis to (strained yoghurt), Labneh, Ymer and Ylette.

2.3 ***Flavoured fermented milks*** are composite milk products, as defined in Section 2.3 of the *General standard for the use of dairy terms* (CXS 206-1999)[1] which contain a maximum of 50 percent (m/m) of non-dairy ingredients (such as nutritive and non-nutritive sweeteners, fruits and vegetables as well as juices, purees, pulps, preparations and preserves derived there from, cereals, honey, chocolate, nuts, coffee, spices and other harmless natural flavouring foods) and/or flavours. The non-dairy ingredients can be mixed in prior to/or after fermentation.

2.4 ***Drinks based on fermented milk*** are composite milk products, as defined in Section 2.3 of the *General standard for the use of dairy terms* (CXS 206-1999), obtained by mixing fermented milk as described in Section 2.1 with potable water with or without the addition of other ingredients such as whey, other non-dairy ingredients, and flavourings. Drinks based on fermented milk contain a minimum of 40 percent (m/m) fermented milk.

Other microorganisms than those constituting the specific starter culture(s) specified above may be added.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw materials

- milk and/or products obtained from milk; and
- potable water for the use in reconstitution or recombination.

3.2 Permitted ingredients

- starter cultures of harmless microorganisms including those specified in Section 2;
- other suitable and harmless microorganisms (in products covered by Section 2.4);

- sodium chloride;
- non-dairy ingredients as listed in Section 2.3 (Flavoured fermented milks);
- potable water (in products covered by Section 2.4);
- milk and milk products (in products covered by Section 2.4); and
- gelatine and starch in:
  - fermented milks heat treated after fermentation;
  - flavoured fermented milk;
  - drinks based on fermented milk; and
  - plain fermented milks if permitted by national legislation in the country of sale to the final consumer;

provided they are added only in amounts functionally necessary as governed by good manufacturing practice, taking into account any use of the stabilizers/thickeners listed in Section 4. These substances may be added either before or after adding the non-dairy ingredients.

3.3 Composition

	Fermented milk	**Yoghurt, alternate culture yoghurt and acidophilus milk**	**Kefir**	**Kumys**
Milk protein[a] (% m/m)	min. 2.7%	min. 2.7%	min. 2.7%	
Milkfat (% m/m)	less than 10%	less than 15%	less than 10%	less than 10%
Titratable acidity, expressed as % lactic acid (% m/m)	min. 0.3%	min. 0.6%	min. 0.6%	min. 0.7%
Ethanol (% vol./w)				min. 0.5%
Sum of microorganisms constituting the starter culture defined in Section 2.1 (cfu/g, in total)	min. 10^7	min. 10^7	min. 10^7	min. 10^7
Labelled microorganisms[b] (cfu/g, total)	min. 10^6	min. 10^6		
Yeasts (cfu/g)			min. 10^4	min. 10^4

[a] Protein content is 6.38 multiplied by the total Kjeldahl nitrogen determined.
[b] Applies where a content claim is made in the labelling that refers to the presence of a specific microorganism (other than those specified in Section 2.1 for the product concerned) that has been added as a supplement to the specific starter culture.

In flavoured fermented milks and drinks based on fermented milk, the above criteria apply to the fermented milk part. The microbiological criteria (based on the proportion of fermented milk product) are valid up to the date of minimum durability. This requirement does not apply to products heat treated after fermentation.

Compliance with the microbiological criteria specified above is to be verified through analytical testing of the product through to “the date of minimum durability” after the product has been stored under the storage conditions specified in the labelling.

3.4 Essential manufacturing characteristics

Whey removal after fermentation is not permitted in the manufacture of fermented milks, except for Concentrated fermented milk (Section 2.2).

4. FOOD ADDITIVES

Only those additives classes indicated in the table below may be used for the product categories specified.

In accordance with Section 4.1 of the preamble to the *General standard for food additives* (CXS 192-1995),[2] additional additives may be present in the flavoured fermented milks and drinks based on fermented milk as a result of carry-over from non-dairy ingredients.

Carbonating agents, stabilizers and thickeners in food category 01.2.1.1 (Fermented milks (plain), not heat treated after fermentation), acidity regulators, carbonating agents, packaging gases, stabilizers and thickeners in food category 01.2.1.2 (Fermented milks (plain), heat treated after fermentation), acidity regulators, colours, emulsifiers, flavour enhancers, preservatives, stabilizers, sweeteners and thickeners in food category 01.1.4 (Flavoured fluid milk drinks) and food category 01.7 (Dairy-based deserts (e.g. pudding, fruit or flavoured yoghurt)) used in accordance with Tables 1 and 2 of the *General standard for food additives* are acceptable for use in foods conforming to this standard.

For flavoured products, all acidity regulators, colours, emulsifiers and packaging gases and only certain carbonating agents, flavour enhancers, stabilizers, sweeteners and thickeners listed in Table 3 of the *General standard for food additives* are acceptable for use in fermented milk products categories as specified in the table below. Preservatives listed in Table 3 are only permitted in flavoured fermented milks heat treated after fermentation and drinks based on fermented milk heat treated after fermentation.

	Fermented milks and drinks based on fermented milk		Fermented milks heat treated after fermentation and drinks based on fermented milk heat treated after fermentation	
	Plain	Flavoured	Plain	Flavoured
Food category of the *General standard for food additives*	**01.2.1.1**	**Not heat treated:** **1.1.4 (Drinks based on fermented milks);** **01.7 (Dairy-based desserts)**	**01.2.1.2**	**Heat treated:** **1.1.4 (Drinks based on fermented milks);** **01.7 (Dairy-based desserts)**
Acidity regulators:	-	X	X	X
Carbonating agents:	X[b]	X[b]	X[b]	X[b]
Colours:	-	X	-	X
Emulsifiers:	-	X	-	X
Flavour enhancers:	-	X	-	X
Packaging gases:	-	X	X	X
Preservatives:	-	-	-	X
Stabilizers:	X[a]	X	X	X
Sweeteners:	-	X[c]	-	X[c]
Thickeners:	X[a]	X	X	X

[a] Use is restricted to reconstitution and recombination and if permitted by national legislation in the country of sale to the final consumer.

[b] Use of carbonating agents is technologically justified in drinks based on fermented milk only.

[c] The use of sweeteners is limited to milk and milk derivatives-based products energy reduced or with no added sugar.

X The use of additives belonging to the class is technologically justified. In the case of flavoured products the additives are technologically justified in the dairy portion.

– The use of additives belonging to the class is not technologically justified.

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 foods and feeds* (CXS 193-1995).[3]

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 foods and feeds* and with the maximum residue limits for veterinary drug residues and pesticides established for milk by the Codex Alimentarius Commission.

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),[4] the *Code of hygienic practice for milk and milk products* (CXC 57-2004)[5] 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).[6]

7. LABELLING

In addition to the provisions of the *General standard for the labelling of pre-packaged foods* (CXS 1-1985)[7] and the *General standard for the use of dairy terms* (CXS 206-1999),[1] the following specific provisions apply:

7.1 Name of the food

The name of the products covered by Sections 2.1, 2.2 and 2.3, shall be fermented milk or concentrated fermented milk as appropriate.

However, these names may be replaced by the designations yoghurt, acidophilus milk, Kefir, Kumys, Stragisto, Labneh, Ymer and Ylette, provided that the product complies with the specific provisions of this standard. Yoghurt may be spelled as appropriate in the country of retail sale.

"Alternate culture yoghurt", as defined in Section 2, shall be named through the use of an appropriate qualifier in conjunction with the word "yoghurt". The chosen qualifier shall describe, in a way that is accurate and not misleading to the consumer, the nature of the change imparted to the yoghurt through the selection of the specific *Lactobacilli* in the culture for manufacturing the product. Such change may include a marked difference in the fermentation organisms, metabolites and/or sensory properties of the product when compared to the product designated solely as "yoghurt". Examples of qualifiers which describe differences in sensory properties include terms such as "mild" and "tangy". The term "alternate culture yoghurt" shall not apply as a designation.

The above specific terms may be used in connection with the term "frozen" provided (i) that the product submitted to freezing complies with the requirements in this standard; (ii) that the specific starter cultures can be reactivated in reasonable numbers by thawing; and (iii) that the frozen product is named as such and is sold for direct consumption, only.

Other fermented milks and concentrated fermented milks may be designated with other variety names as specified in the national legislation of the country in which the product is sold, or names existing by common usage, provided that such designations do not create an erroneous impression in the country of retail sale regarding the character and identity of the food.

7.1.2 Products obtained from fermented milk(s) heat treated after fermentation shall be named "heat-treated fermented milk". If the consumer would be misled by this name, the products shall be named as permitted by national legislation in the country of retail sale. In countries where no such legislation exists, or no other names are in common usage, the product shall be named "heat-treated fermented milk".

7.1.3 The designation of flavoured fermented milks shall include the name of the principal flavouring substance(s) or flavour(s) added.

7.1.4 The name of the products defined in Section 2.4 shall be drinks based on fermented milk or may be designated with other variety names as allowed in the national legislation of the country in which the product is sold. In particular, water added as an ingredient to fermented milk shall be declared in the list of ingredients[i] and the percentage of fermented milk used (m/m) shall clearly appear on the label. When flavoured, the designation shall include the name of the principal flavouring substance(s) or flavour(s) added.

[i] As prescribed in Section 4.2.1.5 of the *General standard for the labelling of pre-packaged foods* (CXS 1-1985).

7.1.5 Fermented milks to which only nutritive carbohydrate sweeteners have been added, maybe labelled as "sweetened _____", the blank being replaced by the term "Fermented Milk" or another designation as specified in Section 7.1.1 and 7.1.4. If non-nutritive sweeteners are added in partial or total substitution to sugar, the mention "sweetened with _____" or "sugared and sweetened with _____" should appear close to the name of the product, the blank being filled in with the name of the artificial sweeteners.

7.1.6 The names covered by this standard may be used in the designation, on the label, in commercial documents and advertising of other foods, provided that it is used as an ingredient and that the characteristics of the ingredient are maintained to a relevant degree in order not to mislead the consumer.

7.2 Declaration of fat content

If the consumer would be misled by the omission, the milk fat content shall be declared in a manner acceptable in the country of sale to the final consumer, either as: i) a percentage of mass or volume; or ii) in grams per serving as qualified in the label, provided that the number of servings is stated.

7.3 Labelling of non-retail containers

The labelling of non-retail containers should be in accordance with the *General standard for the labelling of non-retail containers of foods* (CXS 346-2021).[8]

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)[9] relevant to the provisions in this standard, shall be used.

NOTES

[1] FAO and WHO. 1999. *General standard for the use of dairy terms*. Codex Alimentarius Standard No. CXS 206-1999. Codex Alimentarius Commission. Rome.
[2] FAO and WHO. 1995. *General standard for food additives*. Codex Alimentarius Standard No. CXS 192-1995. Codex Alimentarius Commission. Rome.
[3] FAO and WHO. 1995. *General standard for contaminants and toxins in foods and feeds*. Codex Alimentarius Standard No. CXS 193-1995. Codex Alimentarius Commission. Rome.
[4] FAO and WHO. 1969. *General principles of food hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.
[5] FAO and WHO. 2004. *Code of hygienic practice for milk and milk products*. Codex Alimentarius Code of Practice, No. CXC 57-2004. Codex Alimentarius Commission. Rome.
[6] FAO and WHO. 1997. *Principles and guidelines for the establishment and application of microbiological criteria related to foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.
[7] FAO and WHO. 1985. *General standard for the labelling of pre-packaged foods*. Codex Alimentarius Standard No. CXS 1-1985. Codex Alimentarius Commission. Rome.
[8] FAO and WHO. 2021. *General standard for the labelling of non-retail containers of foods.* Codex Alimentarius Standard No. CXS 346-2021. Codex Alimentarius Commission. Rome.
[9] FAO and WHO. 1999. *Recommended methods of analysis and sampling*. Codex Alimentarius Standard No. CXS 234-1999. Codex Alimentarius Commission. Rome.