

codex alimentarius commission

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD HEALTH
ORGANIZATION

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Agenda Item 6

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COORDINATING COMMITTEE FOR ASIA

Twelfth Session

Chiang Mai, Thailand, 23 - 26 November 1999

ELABORATION OF A STANDARD FOR PRODUCTS IN WHICH MILK COMPONENTS ARE SUBSTITUTED BY NON-MILK COMPONENTS

(Prepared by Malaysia and Thailand)

BACKGROUND

1. At the 23rd Session, the Codex Alimentarius Commission noted the reservations of Malaysia and other countries in Southeast Asia on the Draft General Standard for the Use of Dairy Terms in relation to restriction of the use of dairy terms for those products in which the milk components had been wholly or partially substituted with non-milk components. While adopting the Draft General Standard as final text, the Commission agreed to request the Committee on Milk and Milk Products to consider, as a matter of urgency, the necessity to elaborate a standard for these products, such as filled milk and derived products. Since these products appeared to be wide-spread in Asia, it also requested this Committee to consider this issue in parallel to the Committee on Milk and Milk Products. The following text and the proposed draft standards for filled milk products were prepared by Malaysia and Thailand for consideration.

JUSTIFICATION FOR THE NEED FOR CODEX STANDARDS FOR FILLED MILK PRODUCTS

INTRODUCTION

2. Filled Milk products result from the technological innovation of the production of processed milk. The products are similarly processed under sanitary and hygienic conditions by mixing either milk, milk powder, cream, cream powder or the skimmed milk powder with vegetable oil/fat with/without the addition of refined sugar.

3. Filled milk products were initially produced to provide a cheaper milk alternative for consumers mostly in the lower economic bracket, where large percentage of the growing children are not receiving sufficient nutrients for development if ever they are not completely deprived of such nutrients. For families with average income in many developing countries, regular milk products are still considerably costly. Nowadays, filled milk products has gained wider acceptance providing consumers a variety of products to choose from and alternatives for consumers allergic to whole milk.

4. Figures and Tables to support the following texts are contained in the appendix of this document.

DEFINITION

5. Filled milk is a product whose milk components have been substituted wholly or partially by non-milk components producing an equivalent amount of fat as its regular milk product counterpart. Food additives may be permitted to improve the products' appearance, characteristics and composition.

TYPES

6.
 - Sweetened condensed filled milk
 - Evaporated filled milk
 - Filled milk powder

CONTAINERS/PACKAGING MATERIALS

7. Wide selection of packaging materials are used in packaging filled milk products including metal cans, laminated tubes or pouch and other containers which are hermetically sealed.

- | | |
|-------------------|--|
| Metal can | - traditionally, sweetened condensed filled milk, evaporated filled milk and filled milk powder are contained in cylindrical cans with lids. |
| Laminated tubes | - premium grade sweetened condensed filled milk products may be packed in laminated tubes. |
| Laminated Pouches | - for convenience and economic reasons, more and more filled milk and cream powder manufacturers are now opting for laminated pouches type of packaging. |

PROCESSING

8. The processing methods of evaporated filled milk and filled milk powder are shown in Figures 1 and 2.

NUTRITIVE VALUE

9. The nutrient composition comparison between the sweetened condensed filled milk, evaporated filled milk, filled milk powder and their regular milk product counterparts are shown in Tables 1, 2 and 3. Data show that filled milk and their counterparts are comparable in composition with the exception of cholesterol, which regular milk products contain more than their filled milk counterparts.

PRODUCTION

10. Evaporated and condensed milk are produced in many countries, the major countries in Asia are Malaysia and Thailand. Evaporated and condensed milk which is produced in Malaysia and Thailand are mainly filled milk products for domestic demand as well as for export market. The production of filled milk products are increasing, especially in Thailand the production in 1989-91 was about 9700 MT and grew to 186,000 MT , 200,000 MT, 206,000 MT in 1995, 1996 and 1997 respectively.

CONSUMPTION

11. Condensed filled milk and filled milk powder are consumed in various countries in Asia such as Thailand, Myanmar, Cambodia, Laos, Hong Kong, Singapore, and to some extent in the Far East, USA and New Zealand. The data from most of ASEAN countries show general increase in the consumption of filled milk products (Tables 4, 5)

FILLED MILK IN THE INTERNATIONAL TRADE

12. Filled milk products have a long history of uses and their markets are generally widespread in several countries such as Malaysia, Indonesia, Philippines, Myanmar, Cambodia, Laos, Hong Kong, New Zealand, Singapore, U.S.A., Japan, India and Thailand etc.

LEGISLATION

13. The growing importance of filled milk in the international trade necessitates the development of product standards and regulations to ensure consumers' protection and fair trading practices. For example, imposing nutrition labeling, product safety or quality requirements through legislation do not only ensure consumers' protection and food safety but also facilitate fair competitive trading/pricing practices.

14. Philippines, Malaysia, Indonesia as well as Thailand have developed or are developing regulations for filled milk products. They describe that the product should contain vegetable fat/oil and require mandatory labelling to specify that the products are "not suitable for infants" except in the Philippines.

RATIONALE FOR THE USE OF THE TERM "FILLED MILK"

15. Filled milk products' markets are generally widespread in several countries. Since the products were launched in the market, the products have been known and accepted as "filled milk" products. The use of term "Filled Milk" does not mislead consumers as these products have a long history of use, and the milk composition need to be declared on the label according to the Codex Standard for the Labelling of Prepackaged Foods. (Codex Stan 1-1998, Rev 3-1999) .

PROPOSAL

16. The production of filled milk products has increased significantly mainly in Asia, especially in Southeast Asia, where people use them in many kinds of traditional and common foods.

17. We wish to propose that standards for filled milk products be elaborated as Codex *worldwide* standards. There shall be three standards to cover the following products:

- Sweetened condensed filled milk
- Evaporated filled milk
- Filled milk powder

18. The texts of the Proposed Draft Standards have been prepared by Malaysia and Thailand for consideration by both the Codex Coordinating Committee for Asia and the Codex Committee on Milk and Milk Products.

PROPOSED DRAFT STANDARD FOR SWEETENED CONDENSED FILLED MILK

1. SCOPE

This standard applies to sweetened condensed filled milk, intended for direct consumption in conformity with the composition in Section 3 of this Standard.

2. DESCRIPTION

Sweetened condensed filled milk is a product obtained from milk in which milkfat has been replaced wholly or partly by an equivalent amount of edible vegetable oil, edible vegetable fat or a mixture thereof. It is generally prepared by recombining milk constituents and potable water with the addition of sugar, or by the partial removal of water with the addition of sugar, to meet the compositional requirements in Section 3 of this standard.

3. ESSENTIAL COMPOSITION & QUALITY FACTORS

3.1 RAW MATERIALS

Milk and milk powders*, other milk solids, edible vegetable fats/oils*.

The following milk products are allowed for protein adjustment purposes:

- Milk retentate Milk retentate is the product obtained by concentrating milk protein by ultrafiltration of milk, partly skimmed milk, or skimmed milk;
- Milk permeate Milk permeate is the product obtained by removing milk proteins and milk fat from milk partly skimmed milk or skimmed milked milk by ultrafiltration; and
- Lactose * (Also for seeding purposes)

* For specification, see relevant Codex standard.

3.2 PERMITTED INGREDIENTS

Potable water

Sugar

Sodium chloride

In this product, sugar is generally considered to be sucrose, but a combination of sucrose with other sugars, consistent with Good Manufacturing Practice, may be used.

3.3 COMPOSITION

Minimum total fat	[7 – 8%] m/m
Minimum milk solid-not-fat**	20% m/m
Minimum milk protein in milk solid-not-fat**	34% m/m

** The milk solids and milk solids-not-fat contents include water of crystallization of the lactose.

For sweetened condensed filled milk the amount of sugar is restricted by Good Manufacturing Practice to a minimum value which safeguards the keeping quality of the product and a maximum value above which crystallization of sugar, may occur.

4. FOOD ADDITIVES

Only those food additives listed below may be used and only within the limits specified.

INS No.	Name	Maximum Level
Firming agents		
508	Potassium chloride	2 g/kg singly or 3 g/kg in combination expressed as anhydrous substances
509	Calcium chloride	
Stabilizers		
331	Sodium citrates	2 g/kg singly or 3 g/kg in combination expressed as anhydrous substances
332	Potassium citrates	
333	Calcium citrates	
Acidity Regulators		
170	Calcium carbonates	2 g/kg singly or 3 g/kg in combination expressed as anhydrous substances
339	Sodium phosphates	
340	Potassium phosphates	
341	Calcium phosphates	
450	Diphosphates	
451	Triphosphates	
452	Polyphosphates	
500	Sodium carbonates	
501	Potassium carbonates	
Thickener		
407	Carrageenan	150 mg/kg
Emulsifier		
322	Lecithins	Limited by GMP

5. CONTAMINANTS

5.1 HEAVY METALS

The products covered by this Standard shall comply with the maximum limits established by the Codex Alimentarius Commission.

5.2 PESTICIDE RESIDUES

The products covered by this Standard shall comply with the maximum residue limits established by the Codex Alimentarius Commission.

6. HYGIENE

6.1 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 Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985 Rev.3-1999) the following specific provisions apply:

7.1 NAME OF THE FOOD

The name of the food shall be sweetened condensed filled milk.

A statement shall appear on the label as to the presence edible vegetable fat and/or edible vegetable oil, together with the common name of the vegetable from which such fat or oil is derived.

7.2 DECLARATION OF TOTAL FAT CONTENT

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

7.3 DECLARATION OF MILK PROTEIN

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

7.4 LIST OF INGREDIENTS

Notwithstanding the provision of Section 4.2.1 of the General for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev.3-1999) Milk products used only for protein adjustment need not be declared.

7.5 A statement shall appear on the label to indicate that the product is not suitable for infants. For example "NOT SUITABLE FOR INFANTS".

7.6 LABELLING OF NON-RETAIL CONTAINERS

Information required in Section 7 of this Standards and Sections 4.1 to 4.8 of the General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev.3-1999;) 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 a mark is clearly identifiable with the accompanying documents.

8. METHODS OF SAMPLING & ANALYSIS

8.1 SAMPLING

According to IDF Standard 50 C:1995/ISO 7707:1997/AOAC 968.12.

8.2 DETERMINATION OF TOTAL FAT CONTENT

According to IDF Standard 1D:1996, 13C:1987/ISO1737:1985/AOAC 920.115F.

8.3 DETERMINATION OF TOTAL SOLIDS CONTENT

According to [IDF Standard 15B:1982/ISO 6734:1991 or AOAC 920.115D]¹.

8.4 DETERMINATION OF PROTEIN CONTENT

Protein content is 6.38 multiplied by total Kjeldahl nitrogen determined by AOAC 920.115G.

¹ Secretariat's Note: As both methods are Type I methods, there shall be only one method selected.

PROPOSED DRAFT STANDARD FOR EVAPORATED FILLED MILKS

1. SCOPE

This Standard applies to evaporated filled milks, also known as unsweetened condensed filled milk, which is intended for direct consumption, in conformity with the description in Section 3 of this Standard.

2. DESCRIPTION

Evaporated filled milk is a product obtained from milk in which milkfat has been replaced wholly or partly by an equivalent amount of edible vegetable oil, edible vegetable fat or a mixture thereof. It is prepared by recombining milk constituents and potable water, or by the partial removal of water, to meet the compositional requirements in Section 3 of this standard.

3. ESSENTIAL COMPOSITION & QUALITY FACTORS

3.1 RAW MATERIALS

Milk and milk powders* other milk solids, edible vegetable fats/oils* and milkfat products*.

The following milk products are allowed for protein adjustment purposes:

- milk retentate Milk retentate is the product obtained by concentrating milk protein by ultrafiltration of milk, partly skimmed milk, or skimmed milk;
- milk permeate Milk permeate is the product obtained by removing milk proteins and milkfat from milk, partly skimmed milk, or skimmed milk by ultrafiltration; and
- lactose*

* For specification, see relevant Codex standard.

3.2 PERMITTED INGREDIENTS

Potable water
Sodium chloride

3.3 COMPOSITION

Minimum total fat	[6 - 8%] m/m
Minimum milk solids-not-fat**	[17.5 - 20%] m/m
Minimum milk protein in milk solids-not-fat**	34% m/m

** The milk solids and milk solids-not-fat contents include water of crystallization of the lactose.

4. FOOD ADDITIVES

Only those food additives listed below may be used and only within the limits specified.

INS No.	Name	Maximum Level
	Firming agents	
508	Potassium chloride	2 g/kg singly or 3 g/kg in combination, expressed as anhydrous substances
509	Calcium chloride	

Stabilizers

331	Sodium citrates	2 g/kg singly or 3 g/kg in combination, expressed as anhydrous substances
332	Potassium citrates	
333	Calcium citrates	

Acidity Regulators

170	Calcium carbonates	2 g/kg singly or 3 g/kg in combination, expressed as anhydrous substances
339	Sodium phosphates	
340	Potassium phosphates	
341	Calcium phosphates	
450	Diphosphates	
451	Triphosphates	
452	Polyphosphates	
500	Sodium carbonates	
501	Potassium carbonates	

Thickener

407	Carrageenan	150 mg/kg
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Emulsifier

322	Lecithins	Limited by GMP
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5. CONTAMINANTS

5.1 HEAVY METALS

The products covered by this Standard shall comply with the maximum limits established by the Codex Alimentarius Commission

5.2 PESTICIDE RESIDUES

The products covered by this Standard shall comply with the maximum residue limits established by the Codex Alimentarius Commission.

6. HYGIENE

6.1 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 Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 3-1999), the following specific provisions apply:

7.1 NAME OF THE FOOD

The name of the food shall be evaporated filled milk.

A statement shall appear on the label as to the presence edible vegetable fat and/or edible vegetable oil, together with the common name of the vegetable from which such fat or oil is derived.

7.2 DECLARATION OF TOTAL FAT CONTENT

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

7.3 DECLARATION OF MILK PROTEIN

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

7.4 LIST OF INGREDIENTS

Notwithstanding the provision of Section 4.2.1 of the General for the Labelling of Prepackaged Foods (CODEX STAN 1-1985,Rev.3-1999) Milk products used only for protein adjustment need not be declared.

7.5 A statement shall appear on the label to indicate that the product is not suitable for infants. For example "NOT SUITABLE FOR INFANTS".

7.6 LABELLING OF NON-RETAIL CONTAINERS

Information required in Section 7 of this Standards and Sections 4.1 to 4.8 of the General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev.1-1991; Codex Alimentarius, Volume 1A), 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 a mark is clearly identifiable with the accompanying documents.

8. METHODS OF SAMPLING & ANALYSIS

8.1 SAMPLING

According to IDF Standard 50C: 1995/ISO 707: 1997/AOAC 968.12.

8.2 DETERMINATION OF TOTAL FAT CONTENT

According to IDF Standard 13C:1987/ISO 1737:1985/AOAC 945.48G.

8.3 DETERMINATION OF TOTAL SOLIDS CONTENT

According to IDF Standard 21B:1987/ISO 6731:1989/AOAC 925.23A.

8.4 DETERMINATION OF PROTEIN CONTENT

Protein content is 6.38 multiplied by total Kjeldahl nitrogen determined by AOAC 945.48H.

PROPOSED DRAFT STANDARD FOR FILLED MILK POWDERS

1. SCOPE

This Standard applies to filled milk powders, intended for direct consumption or further processing, in conformity with the description in Section 2 of this Standard.

2. DESCRIPTION

Filled milk powders are products obtained from milk in which milkfat has been replaced wholly or partly by an equivalent amount of edible vegetable oil, edible vegetable fat or a combination thereof, by the partial removal of water to meet the compositional requirements of Section 3 of this standard.

3. ESSENTIAL COMPOSITION & QUALITY FACTORS

3.1 RAW MATERIALS

Milk and milk powders*, edible vegetable oils/fats*.

The following milk products are allowed for protein adjustment purposes:

- milk retentate Milk retentate is the product obtained by concentrating milk protein by ultrafiltration of milk, partly skimmed milk, or skimmed milk;
- milk permeate Milk permeate is the product obtained by removing milk proteins and milkfat from milk, partly skimmed milk, or skimmed milk by ultrafiltration; and
- lactose*

* For specification, see relevant Codex standard.

3.2 COMPOSITION

Filled milk powder

Minimum total fat	26% m/m
Maximum water**	5% m/m
Minimum milk protein in milk solids-not-fat**	34% m/m

** The milk solids and milk solids-not-fat contents include water of crystallization of the lactose.

Partly skimmed filled milk powder

Total fat	More than 1.5% and less than 26% m/m
Maximum water**	5% m/m
Minimum milk protein in milk solids-not-fat**	34% m/m

** The water content does not include water of crystallization of the lactose, the milk solids-not-fat content includes water of crystallization of the lactose.

4. FOOD ADDITIVES

Only those food additives listed below may be used and only within the limits specified.

INS No.	Name	Maximum Level
Stabilizers		
331	Sodium citrates	5 g/kg singly or in combination, expressed as anhydrous substances
332	Potassium citrates	

Firming agents

508	Potassium chloride	Limited by GMP
509	Calcium chloride	Limited by GMP

Acidity Regulators

339	Sodium phosphates	5 g/kg singly or in combination expressed as anhydrous substances
340	Potassium phosphates	
450	Diphosphates	
451	Triphosphates	
452	Polyphosphates	
500	Sodium carbonates	
501	Potassium carbonates	

Emulsifiers

322	Lecithins (or phospholipids from natural sources)	Limited by GMP
471	Mono- and diglycerides of fatty acids	2.5 g/kg

Anti-caking Agents

170(i)	Calcium carbonate	10 g/kg singly or in combination
341(iii)	Tricalcium orthophosphate	
343(iii)	Trimagnesium orthophosphate	
504(i)	Magnesium carbonate	
530	Magnesium oxide	
551	Silicon dioxide, amorphous	
552	Calcium silicate	
553	Magnesium silicates	
554	Sodium aluminosilicate	
556	Calcium aluminium silicate	
559	Aluminium silicate	

Antioxidants

300	L-Ascorbic acid	0.5 g/kg expressed as ascorbic acid
301	Sodium ascorbate	
304	Ascorbyl palmitate	
320	Butylated hydroxyanisole (BHA)	0.01% m/m

Antifoaming agent

900	Polydimethylsiloxane	Limited by GMP ²
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5. CONTAMINANTS

5.1 HEAVY METALS

The products covered by this Standard shall comply with the maximum limits established by the Codex Alimentarius Commission.

5.2 PESTICIDE RESIDUES

The products covered by this Standard shall comply with the maximum residue limits established by the Codex Alimentarius Commission.

² Secretariat's Note: There is a numerical ADI allocated for polydimethylsiloxane and therefore a numerical maximum level is required.

6. HYGIENE

6.1 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 Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 3-1999), the following specific provisions apply:

7.1 NAME OF THE FOOD

The name of the food shall be:

Filled milk powder		according to the composition specified in Section 3
Skimmed filled milk powder		

A statement shall appear on the label as to the presence edible vegetable fat and/or edible vegetable oil, together with the common name of the vegetable from which such fat or oil is derived.

7.2 DECLARATION OF TOTAL FAT CONTENT

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

7.3 DECLARATION OF MILK PROTEIN

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

7.4 LIST OF INGREDIENTS

Notwithstanding the provision of Section 4.2.1 of the General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 3-1999) milk products used only for protein adjustment need not be declared.

7.5 LABELLING OF NON-RETAIL CONTAINERS

Information required in Section 7 of this Standards and Sections 4.1 to 4.8 of the General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev.3-1999), 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 a mark is clearly identifiable with the accompanying documents.

8. METHODS OF SAMPLING & ANALYSIS

8.1 SAMPLING

According to IDF Standard 50C: 1995/ISO 707: 1997/AOAC 968.12.

8.2 DETERMINATION OF TOTAL FAT CONTENT

According to IDF Standard 9C:1987/ISO 1736:1985/AOAC 932.06.

8.3 DETERMINATION OF PROTEIN CONTENT

Protein content is 6.38 multiplied by total Kjeldahl nitrogen determined by IDF Standard 20B:1993/AOAC 991.20-23.

8.4 DETERMINATION OF WATER CONTENT

According to IDF Standard 26A:1993.

APPENDIX

Figure 1: Process of Evaporated Filled Milk

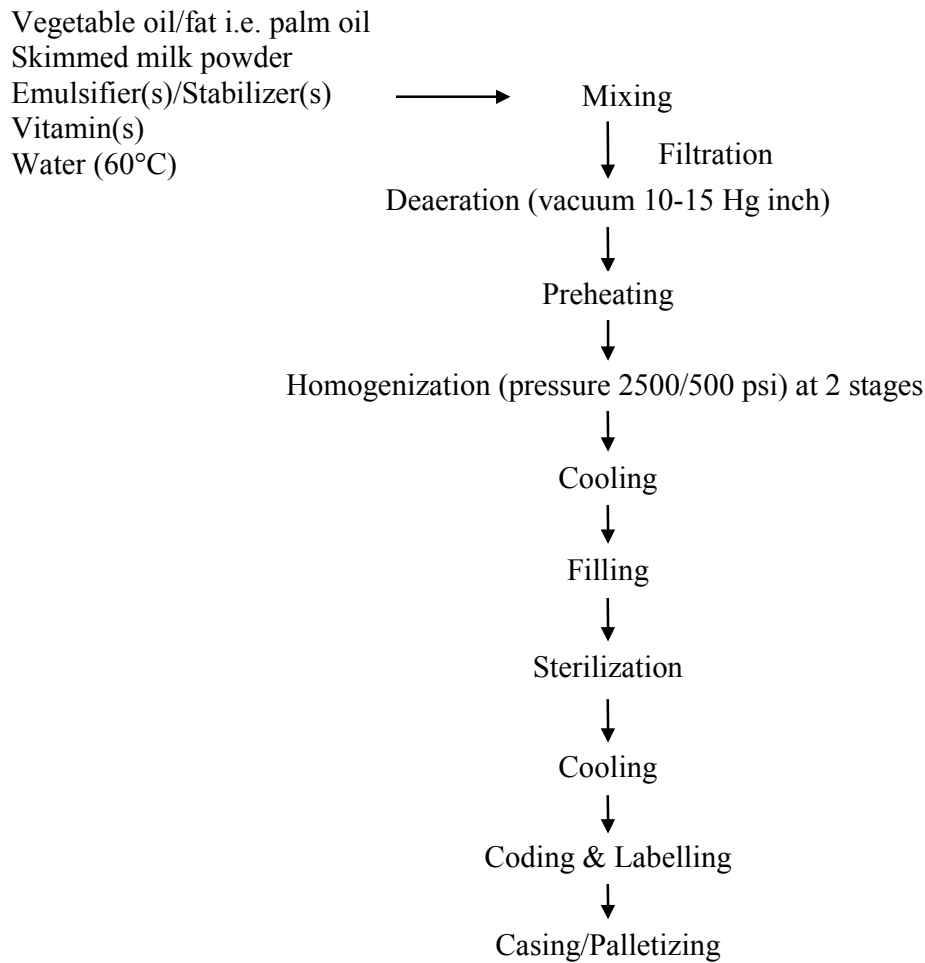


Figure 2: Process of Filled Milk Powder

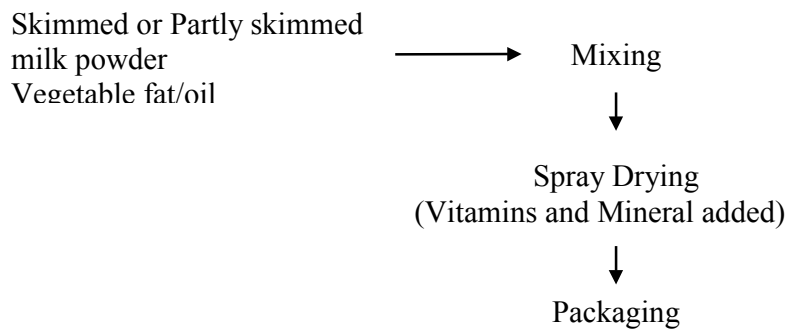


Table 1 : Comparison of nutritive value between the Sweetened condensed filled milk (Palm oil 7.02% + Vitamin A, D & B added) and Regular sweetened condensed milk

Nutrient	Sweetened condensed filled milk (per 100 g)	Regular sweetened condensed milk (per 100 g)
Energy	329 kcal	329 kcal
Total Fat	8 g	8 g
Saturated Fat	4 g	5.4 g
Cholesterol	7.4 mg	25.6 mg
Protein	6.7 g	6.9 g
Total Carbohydrate	56 g	56 g
Fibre	0 g	0 g
Sugar	45 g	45 g
Sodium	91 mg	93 g
Vitamin A	907 IU	184IU
Calcium	240 mg	250mg

Table 2 : Comparison of nutritive value between Evaporated filled milk (vegetable oil 6%) and regular evaporated filled milk (milkfat 7.8%)

Nutrient	Evaporated filled milk (per 100 ml)	Regular evaporated milk (per 100 ml)
Energy	125 kcal	140 kcal
Total Fat	6.31 g	8.04 g
Saturated Fat	2.45 g	3.63 g
Cholesterol	0 mg	15.8 mg
Protein	6.29 g	6.12 g
Total Carbohydrate	10.73 g	10.93 g
Fibre	-	-
Sugar	10.60 g	10.93 g
Sodium	112 mg	118 mg
Vitamin A	129 µg	115.7 µg
Calcium	234 mg	209mg

Table 3 : Comparison of nutritive value between Filled Milk Powder and Regular milk powder

Nutrient	Filled milk powder (per 100 g)	Regular milk powder (per 100 g)
Energy	505 kcal	506 kcal
Fat	28 g	28.2 g
Protein	25.7 g	25.7 g
Carbohydrate	37.6 g	37.4 g
Mineral	5.7 g	5.7 g
Sodium	350 mg	350 mg
Calcium	930 mg	830 mg
Water	3.0 g	3.0 g
Vitamin A	1800 IU	1800 IU
Vitamin C	30 mg	30 mg
Iron	10 mg	10 mg

Table 4: Consumption of Sweetened condensed filled milk and Evaporated filled milk

Country	Quantity (tons)				
	1994	1995	1996	1997	1998
Thailand	178,000	174,000	171,000	167,000	-
Myanmar	3,363	6,459	6,298	9,363	10,040
Cambodia	4,549	5,148	4,022	3,848	6,069
Laos	3,286	3,915	3,216	4,142	4,616
Hong Kong	863	1,049	1,360	895	943
New Zealand	475	255	401	435	382
Singapore	1,347	988	881	998	460
U.S.A.	16	18	-	-	103
Kuwait	-	-	-	15	50
Japan	-	-	44	7	20
India	-	-	-	1	4
Others	258	41	89	41	27
<i>Total</i>	<i>192,157</i>	<i>191,873</i>	<i>187,311</i>	<i>186,745</i>	<i>22,714</i>

Note 1. The figure of Thailand is total consumption of condensed milk and evaporated milk including filled milk
2. The figure of other countries is estimated data based on Thailand 's export, HS. Code : 0402990004

Table 5: Consumption of Filled milk powder

Country	Quantity (tons)	
	1996	1997
Thailand	263,000	276,000
Canada	-	1.25
Hong Kong	65.96	32.86
Cambodia	89.66	32.62
Laos	79.47	74.60
Myanmar	111.86	251.22
Malaysia		1.78
Singapore	0.023	-
Viet Nam	703.11	495.30
<i>Total</i>	<i>264,050.083</i>	<i>276,919.74</i>

Note 1. The figure of Thailand is total consumption of milk powder including filled milk powder
2. The figure of other countries is estimated data based on Thailand 's export, HS. Code : 0402290108