

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.jfda-online.com](http://www.jfda-online.com)

## Review Article

# Standards and labeling of milk fat and spread products in different countries

Chia-Lin Lee <sup>a</sup>, Huei-Lin Liao <sup>a</sup>, Wan-Chen Lee <sup>a</sup>, Chao-Kai Hsu <sup>a</sup>,  
Fwu-Chyn Hsueh <sup>a</sup>, Jyh-Quan Pan <sup>a</sup>, Chih-Hsuan Chu <sup>b</sup>, Chieh-Ting Wei <sup>b</sup>,  
Ming-Ju Chen <sup>c,\*</sup>

<sup>a</sup> Food and Drug Administration, Ministry of Health and Welfare, Taipei, Taiwan

<sup>b</sup> Taiwan Quality Food Association, Taipei, Taiwan

<sup>c</sup> Department of Animal Science and Technology, National Taiwan University, Taipei, Taiwan

## ARTICLE INFO

## Article history:

Received 23 April 2017

Received in revised form

18 September 2017

Accepted 14 October 2017

Available online xxx

## Keywords:

Milkfat products

Butter

Cream

Blends

Spreads

## ABSTRACT

In the present paper, we provide comprehensive information related to labeling claims and standards of identity of milk fat and spread products. By reviewing the standards and regulations for dairy and non-dairy fat products, Codex Alimentarius and several other countries have clearly specified these products and set the requirements for use of the product name to prevent misleading or confusing the consumers. Generally, for the milkfat products, the fat in the products should be exclusively from milk and/or the products obtained from milk. The milkfat contents of these products should be no less than 10%. Whereas, the blends or blended spreads are mixture of butter and vegetable oils with more than 3% of milkfat of the total fat content. The fat spreads are defined that any milkfat content must be no more than 3% of the total fat content. Although the specification of each fat product might be different, most countries still adopt the labeling system of Codex Alimentarius, including the use of the food names and the “reduced fat” claims. Each of the ingredients used in the food also need to be declared on the label.

Copyright © 2017, Food and Drug Administration, Taiwan. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

The fat in milk is primary to provide a source of energy to the new born baby. In cow's milk, more than 98% of fats are triacylglycerols, but monoacylglycerols and diacylglycerols, free fatty acids, phospholipids, sterols, carotenoids, fat-soluble

vitamins and flavor compounds are also found [1]. Milk fat has a unique flavor and texture conferring on a wide variety of dairy products.

The milkfat products could be divided into several categories according to their fat contents, including anhydrous milk fat products, butter, cream and dairy fat spreads. Many blends, mixing butter and vegetable oils, were also developed

\* Corresponding author. Department of Animal Science and Technology, National Taiwan University, No. 50 Lane 155 Sec. 3. Keelung Rd., Taipei 106, Taiwan.

E-mail address: [cmj@ntu.edu.tw](mailto:cmj@ntu.edu.tw) (M.-J. Chen).

<https://doi.org/10.1016/j.jfda.2017.10.006>

1021-9498/Copyright © 2017, Food and Drug Administration, Taiwan. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

to increase the content of unsaturated fatty acids for improvement of spreadability at low temperatures (Table 1). In Taiwan, most of the milkfat products are imported from other countries, majorly from United States, New Zealand, Japan and some European countries. Many non-dairy creamers, blends and blended spreads are also on the markets. Recently, Taiwan Food and Drug Administration (TFDA) made lots of efforts to modernize the food standards of identity and updates to the standards for dairy products. Understanding the definitions and standards worldwide of the various milk-fat products are important issue not only for assurance of food safety but also for prevention of misleading and mislabeling to dairy products. Clearly labeling regulation and products' standards are necessary to distinguish the dairy and non-dairy fat products to the public. In the present paper, we provide comprehensive information related to labeling claims and standards of identity of milk fat and spread products by reviewing the standards of Codex [2,3], China [4], United States [5], Japan [6,7], European Union [8], New Zealand [9,10] and Taiwan [11,12].

## 2. Butter

The butter, one of the oldest milk products, is a water-in-oil (W/O) emulsion, generally containing a minimum of 80 g milk fat/100 g and a maximum of 16 g moisture/100 g. The raw materials should be milk and/or products obtained from milk. Nowadays, besides the traditional butter, various butter products (Table 2) such as reduced fat and low fat butters (spreads) have been developed and commercialized to meet the public health concerns and improve the butter qualities.

### 2.1. Traditional butter

Varieties of the traditional butters (80% milkfat) are made from pasteurized cream under approved conditions following the churning processing to destabilize of the oil-in-water (O/W) milk or cream emulsion. Common salt may or may not be added. Salted butter has 1.6–1.7% salt and can be stored refrigerated for up to 2 months. Under freezer, salted butter can be lasted for 6–9 months. On contrary, unsalted butter can be only stored for up to 2 weeks refrigerated and for up to 5 months under frozen condition.

According to Codex Alimentarius [2], the butter is a fatty product derived exclusively from milk. It is also specified that

butter must contain minimum fat 80% (m/m), maximum water 16% (m/m), and milk solids not-fat (SNF) 2% (m/m). National legislation in many countries, such as Taiwan [11], China [4], Japan [6,7], New Zealand, Australia [9] and European Union [13], adopt the same specifications (Table 2), and mixture of milkfat with fat from other sources is prohibited. A minor difference is found in European Union Council Regulation [13] in unsalted butter. The minimum milkfat content, by weight, is 82%.

Sanitation requirements are regulated in each country. In United States [14], proteolytic count, yeast and mold count and coliform count in butter are no more than 100, 20 and 10 per gram, respectively. In China [4], they also set microbiology requirement in aerobic plate count, *Staphylococcus aureus*, Coliform, Salmonella and molds.

For the quality standards, U.S. government grades butter on the basis of its flavor, body, color and salt content [15]. Grading of butter is first determined on the basis of classifying the flavor characteristics and then rating body, color and salt characteristics. Each parameter is scored accordingly. Flavor is determined organoleptically by smell and taste. Body refers to the textural features of butter as related to its spreadability and mouthfeel. Color refers to the evenness of color and shades of yellow of the butter. Salt is discerned from the degree of salt taste and whether it is completely dissolved. Once these parameters are evaluated, the scores for each sample are added and butter is graded as United States Department of Agriculture (USDA) grade AA, A or B. Grade AA butter possesses a fine and highly pleasing butter flavor. The permitted total disratings in body, color, and salt characteristics are limited. Grade A butter possesses a pleasing and desirable butter flavor with any of following flavors to a slight degree: acid, aged, bitter, coarse, flat, smothered, and storage. The permitted total disratings in body, color, and salt characteristics are also limited. Grade B butter possesses a fairly pleasing butter flavor with any of following flavors to a slight degree: malty, musty, neutralizer, scorched, utensil, weed, and whey. Most butter sold is United States Department of Agriculture (USDA) Grade AA. Grade B butter is used mainly for manufacturing purposes.

### 2.2. Reduced fat butter (spread)

Besides the traditional butter, the reduced fat butter (spread) was also regulated in certain countries (Table 2). Codex Alimentarius [16] defines dairy fat spreads as products exclusively obtained from milk. The product shall have a fat

**Table 1 – The category of milkfat and spreads products.**

Milkfat products (fat source: milkfat, milkfat content: $\geq 10\%$ )		Blends and blended spreads products (fat source: butter and vegetable oil, milkfat content: $\geq 3\%$ )		Fat spreads products (fat source: vegetable oil and/or butter, milkfat content: $<3\%$ )	
Milkfat content	Category	Fat content	Category	Fat content	Category
$>99.8\%$	Anhydrous milkfat 1 . Anhydrous milkfat 2 . Butter oil	$\geq 80\%$	Blends	$\geq 80\%$	Margarine (Reduced fat margarine or light margarine)
$\geq 80\%$	Butter (Reduced fat butter or light butter)	10%–80%	Blended fat spreads	10%–80%	Fat spreads
$\geq 10\%$	Cream				

Download English Version:

<https://daneshyari.com/en/article/8520827>

Download Persian Version:

<https://daneshyari.com/article/8520827>

[Daneshyari.com](https://daneshyari.com)