



HARMONIZED SYSTEM  
COMMITTEE

NC0154E1  
(+Annexes I to V)

-  
24<sup>th</sup> Session  
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O. Eng.

Brussels, 11 October 1999.

CLASSIFICATION OF "HIGH FAT CREAM CHEESE" AND POSSIBLE  
CREATION OF A DEFINITION OF CHEESE IN HEADING 04.06

(Item VII.10 on Agenda)

Reference documents :

41.475 (HSC/20)	42.750, Annex G/12 (HSC/22 – Report)
41.600, Annex G/23 (HSC/20 – Report)	42.805 (SSC/14)
42.040 (HSC/21)	42.827 (SSC/14)
42.056 (HSC/21)	42.828 (SSC/14)
42.113 (HSC/21)	42.850, Annex A/13 (SSC/14 - Report)
42.100, Annex H/1 (HSC/21 – Report)	NC0027E1 (HSC/23)
42.438 (HSC/22)	NC0086E1 (HSC/23)
42.727 (HSC/22)	NC0090E2, Annex E/1 (HSC – Report)
	NC0129E1

I. COMMENTS FROM CUSTOMS LABORATORIES

1. At the time of preparation of Doc. NC0129E1, the Secretariat had only received test results from one administration. However, following the publication of that document, the Secretariat received test results and comments from the Customs laboratories of Japan, the United States, Austria, Mexico and Ireland. The results of their tests (and comments) are reproduced in Annexes I to V of this document.

II. DISCUSSIONS IN THE CODEX ALIMENTARIUS COMMISSION

2. The Secretariat has also received the Draft Revised Standard for Cheese, adopted at the 23<sup>rd</sup> Session of the Codex Alimentarius Commission (28 June – 3 July 1999), which will be available to the delegates during the meeting.
3. The Secretariat has to inform the Committee that, during the discussion in the Codex Alimentarius Commission, one delegation proposed that the Codex Alimentarius Commission request the Committee for Milk and Milk Products to consider the inclusion of a minimum level of protein in the Standard to provide for better guidance on the product.

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4. Many delegations supported this proposal, and the Codex Alimentarius Commission, therefore, requested the Committee for Milk and Milk Products to consider : (1) inclusion of a minimum level for protein; and (2) raw materials. It also requested that Committee for Milk and Milk Products to give priority in the revision of individual cheese Standards.
5. Consequently, this issue has been referred by the Codex Alimentarius Commission to the Codex Committee for Milk and Milk Products (CCMMP) for consideration at its next session in February/March 2000 in Wellington (NZ).
6. In this respect the International Dairy Federation is currently working on a paper related to the "Definition and Composition of Cheese" which is expected to be ready for government consideration and discussion prior to the CCMMP meeting.

### III. CONCLUSION

7. The Secretariat has no further comments and leaves it to the Committee whether it is now in a position to rule on the classification of "High Fat Cream Cheese", based on the test results reproduced in the Annexes to this document, and taking into account the comments of the Scientific Sub-Committee and the Secretariat's observations in Doc. NC0129E1.

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COMMENTS FROM THE JAPANESE ADMINISTRATION“Analytical results of High Fat Cream Cheeses from Australia

<b>(Qualitative analyses)</b>	<b>Sample A</b>	<b>Sample B</b>	<b>Sample C</b>
1. Appearance (Cold storage) (at 28 °C)	Solid Light-yellow paste	Solid Light-yellow paste	Solid Light-yellow paste
2. Smell	Strong smell of cheese	Faint flavour of cream/butter	Faint flavour of cream/butter
3. Solubility in petroleum ether	Separated into transparent yellow solution and a large amount of milk-white precipitation	A large portion of sample is soluble (a small amount of precipitation only)	A large portion of the sample is soluble (a small amount of precipitation only)
<b>(Quantitative analyses)</b>			
1. Moisture content	34.6 %	27.6 %	25.6 %
2. Butterfat content	60.6 %	70.1 %	72.4 %
3. Protein content	3.95 %	0.93 %	0.85 %
4. Lactose content (Hanes method)	1.40 %	1.33 %	1.21 %
5. Ash content (550°C/3hrs)	0.45 %	0.18 %	0.19 %
(Total values)	101.00 %	100.14 %	100.25%
6. Acidity	0.14	0.04	0.05
7. pH	6.07	6.72	6.60

NOTE FROM THE JAPANESE ADMINISTRATION ON ANALYTICAL RESULTS ON  
HIGH FAT CREAM CHEESES FROM AUSTRALIA

1. On 12 April 1999, the Japanese Administration received three samples from Australia labelled as Sample A (Double Mascarpone), Sample B (Triple M), and Sample C (High Fat Cream Cheese), respectively. These samples were analysed immediately on physical, chemical and organoleptic characteristics. (Table I)
2. Physical status of the samples showed solid under cold storage, however, they turned into paste like status at 28 °C. This status does not seem solid or semi-solid.

3. Samples B and C are considered as water-in-oil emulsions because they were highly soluble in petroleum ether. The emulsion type of sample A remained uncertain because it was partly soluble in petroleum ether but a large amount of milk-white mass remained insoluble.
4. The protein contents of samples A, B and C on a dry matter basis are 5.94 %, 1.28 % and 1.14 % respectively. Based on the fact that sample A was manufactured using rennet and higher protein content, coagulation of protein (casein) had taken place properly in this sample.
5. However, samples B and C are, concerning their physical, chemical and organoleptic characteristics, most comparable with butter and should be regarded as dairy spreads.
6. Apart from the result above, the Japanese Administration would like to point out that the samples supplied by Australia at this time are not similar to those in Doc. 42.805. Japan would ask member countries that a prudent decision be made on the classification of the originally submitted samples (a), (b) and (c) as a consequence of the fact mentioned here.”

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COMMENTS FROM THE US ADMINISTRATION

## “UNITED STATES CUSTOMS SERVICE – LABORATORY REPORTS

	DOUBLE MASCARPONE	TRIPLE M	HIGH FAT CREAM CHEESE
Moisture	31.4 %	27.7 %	25.7 %
Fat	63.0 %	68.8 %	70.1 %
Fat (moisture free basis)	91.8 %	95.1 %	94.3 %
Protein (6.38 factor)	0.20 %	0.23 %	0.23 %
Salt (as sodium chloride)	0.09 %	0.04 %	0.05 %
Lactose (monohydrate)	1.02 %	1.49 %	1.07 %”

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COMMENTS FROM THE AUSTRIAN ADMINISTRATION

“The analytical results of three samples of high fat cream cheeses are as follows :

	<b>Double mascarpone</b>	<b>Triple M cheese</b>	<b>High fat cream cheese</b>
	Condition : yellow, spreadable paste with acidulous flavour and buttery taste	Condition : yellow, spreadable paste with acidulous flavour and buttery taste	Condition : yellow, spreadable paste with acidulous flavour and buttery taste
	<b>Analytical results :</b>		
Dry substance (103 °C)	67.5 %	70.4 %	73.8 %
Moisture	32.5 %	29.6 %	26.2 %
Total fat	62.7 %	67.9 %	72.6 %
Fat (MFB)	92.9 %	96.4 %	98.4 %
Total nitrogen	0.64 %	0.17 %	0.15 %
Protein (TN x 6.38)	4.09 %	1.09 %	0.99%
Ash (550 °C)	0.41 %	0.26 %	0.20 %
Lactose (HPLC)	0.64 %	1.01 %	1.03 %
pH	4.4	4.3	4.7

In our opinion (laboratory) the three products are not cheeses in the sense of heading 04.06, but products of heading 04.05 (dairy spreads).”

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COMMENTS FROM THE MEXICAN ADMINISTRATION

1. "I make reference to the memorandum received from Phill Goode Manager Planning (International) of the Australian Dairy Corporation wherein you advise us of the dispatch of samples of "cheese" including analysis for our evaluation and impression of the products.
2. Additionally we received as well copies of comments regarding classification of high fat cream cheese and possible creation of a definition of cheese of heading 04.06 numbers 42.805 E, 42.827 E, 42.828 E dated Brussels 21 January, Brussels 1 February & Brussels 5 February all of them pertaining to the 14<sup>th</sup> Session of the WCO/OMD Scientific Sub-Committees.
3. In this respect we would like to inform you that we analyzed the samples and found them to have the following analysis.

	DOUBLE MASCARPONE	TRIPLE M. CHEESE	HIGH FAT CREAM CHEESE
Protein	4,0%	1,47%	0,5%
Fat	54,4%	69,5%	72,3%
Humidity	40,5%	28,4%	24,5%
Ash	0,5%	0,2%	0,2%
Carbohydrates	0,6%	0,5%	2,5%

Description of product : Yellowish cream coloured paste

Flavour : Strong diacetyl, slightly cheezy.

4. Firstly let me reproduce the history of the Mascarpone cheese : it was originally made in the southern region of the province of Milan and its production was confined almost exclusively to the winter months. Currently due to the technology of refrigeration this cheese can be made and transported all year around.
5. The Mascarpone cheese can be defined as a type of coagulated cream velvety in appearance, thick with a delicate and sweet flavour. It is made out of cream which has been removed from the surface of the milk or better yet by centrifugation. It's fat content is between 25 to 35%. It is placed in water and heated to 185-194°F (85-90°C) and is maintained with slight agitation. Afterward citric or tartaric acid is added and then the blend is agitated slowly and lightly until coagulates begin to form which in turn agglomerate into larger particles.
6. Afterwards the curd is removed and placed in muslin cloth and the curd is drained for 25 hours at a temperature of 46 – 50°F (8 – 10°C). When this is finished the curd is whipped and packed in small tubes. This product is not only used as cream in fruits and desserts but also plays an important role in many culinary Italian specialities.

The final analysis of the Mascarpone Cheese is as follows :

Protein (N x 6.38)	7 to 8,0 %
Fat	45 to 55,0 %
Humidity	45 to 50,0 %
Lactose	2 to 3,0 %

7. Re Scientific Sub-Committee Doc. 42.805 we have taken due note of the cream cheese analysis (for reference only) and it is plain to see that the product has a very low protein content and yet it is classified as a cheese. We agree with the Delegate of Japan's criteria that Mascarpone cheese should not be reclassified and this also should apply to Cream Cheese even though in my opinion I would like to see the word spread next to it.
8. We are here to discuss the following :
  - (i) whether cheese could be a water – in – oil emulsion and if so, how to make a distinction between water – in – oil emulsion type dairy spreads and water – in – oil emulsion type cheese;
  - (ii) the meaning of coagulation in the context of production of cheese and whether heating is regarded as a coagulating agent;
  - (iii) whether the protein content was a determining factor for cheese;
  - (iv) the maximum level of fat content on dry basis allowed for cheese products;
  - (v) water/protein ratio in cheese;
  - (vi) whether the products at issue met the criteria for dairy spreads set out in Note 2 (b) to Chapter 4.
9. In my opinion the discussion on whether cheese could be a water – in – oil type emulsion and, if so, how to make a distinction between water – in – oil emulsion type dairy spreads and water – in – oil emulsion type cheese is irrelevant. I believe that there is no question regarding this product to be an oil/water emulsion as indicated in the Dairy Science and Technology Handbook, Vol. 3, page 22. The problem lies in the difference of identity between a dairy spread and a cream cheese. The fact of the matter remains that the only difference between the two products comes down in the end to the process of obtention, nevertheless the final product has the same nutritious value and if we use this as a parameter then the product irrespective of the coagulation process with a very low or negligible amount of protein in the final product should become a dairy spread.
10. The term or word Coagulation is used to indicate the following : to curdle (thicken), to congeal (harden, come together and gelare freeze, to freeze together, water becomes ice); to cause a liquid to become a soft semi – solid mass as to coagulate blood, rennet coagulates milk. The act of changing from a fluid to a soft semi – solid state, also the state of being coagulated. The mass or result of such a change. What is then a coagulum ? : a coagulated mass, as curd, however meet the draft CODEX requirement that whey protein ration does not exceed that of milk. In high fat products the protein levels will be by definition very low.
11. With regard to this memorandum we arrive at the same conclusion which we have been all along indicating and that is that in our opinion you can not use the word cheese which comes from cases equal to casein to brand a product which has little or negligible amounts of this protein it is absolutely misleading in its definition irrespective of CODEX and IDF's information and rules for determination of the products and furthermore the method of detection can not technically and scientifically conclusively differentiate the cream cheese from the dairy spreads.

12. As far as the functionality is concerned I would like to know what is the difference between one product and the other. Cream cheese and dairy spreads are normally used for cheesing or buttering your bread. Both of them can be used indistinctively as pie fillers but of course the baker will ask for cream cheese and not for a dairy spread which is an advantage for the product that is named cream cheese. As previously advised if the final decision is to name this product as cream cheese in my opinion it would have to invariably follow with the word spread, otherwise it is absolutely misleading.
13. Re Doc. 42.827 is a ping pong match with Australia under siege and defending itself on the basis of the CODEX Alimentarius and the IDF rules, and in this context they are right as the product in their opinion and ours as well complies with the rules laid out by both CODEX and IDF. The question again is : Are these rules all right ? or should they be revised in view of the arguments against.
14. Re Doc. 42.828, milk and/or cream and/or whey and/or albumin and/or inclusive vegetable proteins can be coagulated by temperature and acidity the result will always be a coagulum. In fact TOFU is sometimes mistakingly referred as Soy Cheese and again the word cheese implies casein and there is no casein in soy. Normal coagulation of milk is done by rennet and cheeses like Ricotta and similar are coagulated by temperature and lowering of the PH by the addition of acid. You can also coagulate by thermal action without acid but this requires a longer period of time. If you take liquid milk and heat the product and leave it standing warm it will acidify via generation of lactic acid which in turn will drop the pH and consequently coagulate the milk. The important thing that the Australians say is that **CODEX does not attempt to classify product according to protein levels and recent discussions at the IDF suggested that protein may be a necessary factor in coagulation.** It goes on to say that the amount of protein which may have been available at the time of coagulation will remain in the final product. Indeed the wheying off process frequently involves a reduction in the protein level with the exception of the ultrafiltration techniques. As this occurs the amount of protein in the final product will be in direct inverse proportion to the occurrence of other components. If the final product has a high fat content it must by definition have a low protein content irrespective of the amount of protein that was available in the vat at the time of coagulation.
15. Nevertheless if the standardization is controlled, the final product will have whatever minimum level of protein is agreed upon for this type of products. If this level of protein (whatever is agreed upon) is not attained then the cream cheese irrespective of the process becomes a dairy spread. I insist the level of protein is important in order to avoid misleading the buyer with regard clot of blood etc.; the thick precipitate produced when albuminous matter coagulates. What is then the coagulator ? The substance that produces coagulation.
16. Thus if the product is coagulated it goes from fluid to a soft semi – solid mass. This product was liquid at the beginning ? If we centrifuge the milk and we obtain a product with 42% and +- 3,0% of non fat solids and the water content is about 45%, the mass is liquid but thick the rheological properties are different from milk. If we additionally evaporate the water content to a high concentration of fat the product becomes very thick without the addition of rennet or without the acid coagulation. In other words the concentrated cream has +- the same rheological properties as the coagulated product.

17. Protein is a determining factor for cheese in more ways than one, without protein there is no coagulation but the coagulum formed when the protein level is low does not produce a product that texture wise and in its rheological properties is different than the dairy spread itself. So protein is important moreover a product can not be called cheese without the presence of a substantial amount of protein in the product itself, otherwise in its context it is absolutely misleading.
18. Regarding the maximum level of fat content on a dry basis allowed for cheese production. In this case this is irrelevant, as it is obvious that the product is a high fat product principally used for spreading purposes. The fat accounts for lipolysis which together with the proteolysis help to develop the flavour. Excess amounts of fat will only contribute to give the product a more buttery nature (flavour and texture wise) especially when the protein level is negligible.
19. The water – protein ratio is directly related to the protein behaviour in water in relation to their spatial structure and their physic-chemical properties and of course in the end the water-protein ration also affects other functional properties of proteins such as rheological behaviour, thickening, gelling, emulsifying and foaming properties. In this case it is a very important factor but does not affect the issue in question with regard to the classification of the product and its heading.
20. This brings us to the IDF Summary Information (extract from Doc. 42.040) wherein cheese is defined in item 8 and in paragraph 12 they say that the three products referred by Japan satisfy all the criteria in paragraph 11 (whey protein/casein ratio does not exceed that of milk (cream) used; and that it contains 60 % milk fat in dry matter, minimum 35 % dry matter and minimum 67 % moisture on a fat – free basis), to be considered cheese provided that they have a texture comparable with fat of a semi solid used in the codex definition.
21. It goes on to say that the Codex definition of cheese is still a draft and it awaits finalization by the Codex Alimentarius Commission in July 1999.
22. In the following page Annex II to Doc. 42.805 item PROTEIN it says : **CODEX does not attempt to classify products according to protein levels.** The only mention of protein in the CODEX provisions refers to a ratio between whey protein and casein. There is no mention of quantitative requirements for protein, either maximum or minimum. The products in question, to the product. The nutritious value of the dairy spread versus the cream cheese with the same analysis does not in any way reflect any difference and in consequence the utilisation of the name cream cheese is completely unreal in regard tot he product offered.
23. I would think that in all fairness the name spread should invariably accompany the word cream cheese as this automatically infers the spreadability of the product and consequently the amount of fat and/or water have been modified from their original form in order to allow the product to be semi – solid and therefore spreadable, outstretchable or in anyway expandable. The idea is not only to comply with the regulations but definitely avoid misleading information.”

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COMMENTS FROM THE IRISH CUSTOMS ADMINISTRATION

1. With regard to the classification of "High Fat Cream Cheese" (Doc. 42.850, Annex A/13), three product samples were submitted by Australia and tested by the Irish Administration. The test results show these samples have protein contents ranging from 2.5 to 1 %. Inspection of the products indicated that they had a pale white aspect similar in colour to "Philadelphia Cheese". Tasting led to general agreement that Sample A containing 2.5 % protein had a slight granularity before melting in the mouth. Samples B & C instantly melted in the mouth and had a mouth feel similar to butter or spreads. At fridge temperature all samples had a slightly crumbly texture.
  2. We would find it difficult to say that any of the three products sampled could be considered as a cheese. Equally we would find it difficult to consider the products to be spreads as defined in Legal Note 2 (b) to Chapter 4, consisting of a water in oil emulsion.
  3. On standing at room temperature for a day, Samples B & C and to lesser extent Sample A changed texture and developed the typical yellow look of a butter or spread and also developed into a water in oil emulsion.
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