

codex alimentarius commission

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD HEALTH
ORGANIZATION

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ALINORM 99/17

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

Twenty-third Session
Rome, Italy, 28 June - 3 July 1999

REPORT OF THE SIXTEENTH SESSION OF THE CODEX COMMITTEE ON FATS AND OILS

London, United Kingdom
8 - 12 March 1999

Note: This document incorporates Codex Circular Letter 1999/3-FO

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CX 5/15.2

CL 1999/3-FO
March 1999

TO: - Codex Contact Points
- Interested International Organizations

FROM: - Secretary, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme,
FAO, 00100 Rome, Italy

SUBJECT: **Distribution of the Report of the 16th Session of the Codex Committee on Fats and Oils (ALINORM 99/17)**

A. MATTERS FOR ADOPTION BY THE 23rd SESSION OF THE CODEX ALIMENTARIUS COMMISSION

Draft Standards and Code at Step 8 of the Procedure

1. Draft Standard for Named Vegetable Oils (para. 62, Appendix II)
2. Draft Standard for Named Animal Fats (para. 79, Appendix III)
3. Draft Revised Standard for Edible Fats and Oils not Covered by Individual Standards (para. 91, Appendix IV)
4. Proposed Draft Revised Code of Practice for the Storage and Transport of Fats and Oils in Bulk (para. 123, Appendix V)

Governments wishing to propose amendments or comments on the above documents should do so in writing in conformity with the Guide to the Consideration of Standards at Step 8 (see Procedural Manual of the Codex Alimentarius Commission) to the Secretary, Joint FAO/WHO Food Standards Programme, FAO, via delle Terme di Caracalla, 00100 Rome, Italy **before 30 April 1999**.

B. REQUEST FOR COMMENTS AND INFORMATION

5. Proposed Draft Standard for Fat Spreads and Blended Spreads at Step 3 (para. 137, Appendix VI)

Governments are invited to provide comments on the amended text, especially on the sections in square brackets (composition).

6. Proposed Draft Lists of Acceptable Previous Cargoes and of Banned Immediate Previous Cargoes (to be included in the Draft Code of Practice)

Government and international organizations are invited to provide information and proposals on the substances to be included in the Lists, in order to facilitate the development of Proposed Draft Lists for consideration by the 17th Session of the Committee.

Governments and international organizations wishing to submit comments and information on points 5. and 6. should do so in writing to the Secretary, Joint FAO/WHO Food Standards Programme, FAO, via delle Terme di Caracalla, 00100 Rome, Italy, **for point 5, before 15 November 1999 and for point 6 before 15 September 1999.**

SUMMARY AND CONCLUSIONS

The summary and conclusions of the 16th Session of the Codex Committee on Fats and Oils are as follows:

Matters for consideration by the Commission:

The Committee:

- agreed to advance to Step 8 the Draft Standard for Named Vegetable Oils (para. 62, Appendix II)
- agreed to advance to Step 8 the Draft Standard for Named Animal Fats (para. 79, Appendix III)
- agreed to advance to Step 8 the Draft Revised Standard for Fats and Oils not Covered by Individual Standards (para. 91, Appendix IV)
- agreed to advance to Step 8 the Draft Revised Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk (para. 123, Appendix V)

Other Matters of Interest to the Commission

The Committee:

- agreed to return the Draft Standard for Olive Oils and Olive Pomace Oils to Step 6 for redrafting and further comments (para. 13)
- agreed to return the Proposed Draft Standard for Fats Spreads to Step 3 for further comments (para. 136, Appendix VI)
- proposed to initiate the following new work:
 - Amendment to the Draft Standard for Named Vegetable Oils: High Oleic Acid Sunflower Oil and High Oleic Acid Safflower Oil (para. 33)
 - Elaboration of Lists of Acceptable and Banned Previous Cargoes, to be included in the Draft Code of Practice (para. 107)

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OPENING OF THE SESSION

1. The Codex Committee on Fats and Oils held its 16th Session from 8 to 12 March 1999 in London, by courtesy of the Government of the United Kingdom. The Session was attended by 95 participants representing 28 Member States and 7 international organizations. The session was chaired by Mr Grant Meekings, Head of Food Labelling and Standards Division, Ministry of Fisheries and Food. The complete list of participants is given in Appendix 1 of this report.
2. The Session was opened by Mr Meekings who warmly welcomed participants to the 16th Session on behalf of the Government of United Kingdom and wished them every success in their work. The Chairman, recalling earlier discussions within the Commission and Codex Committees, emphasized the need to achieve consensus in the elaboration of the standards.

ADOPTION OF THE AGENDA (Agenda Item 1)¹

3. The Committee adopted the Provisional Agenda as presented in CX/FO 99/1 as the Agenda for the Session and agreed to establish an informal Working Group on Methods of Analysis and Sampling chaired by Dr R. Wood (United Kingdom) in order to facilitate discussions on Methods of Analysis and Sampling.

MATTERS ARISING FROM THE CODEX ALIMENTARIUS COMMISSION AND OTHER CODEX COMMITTEES (Agenda Item 2)²

4. The Committee noted the decisions of the 22nd Session of the Codex Alimentarius Commission (CAC) and the 45th Session of Executive Committee of the CAC regarding its work and on the status of Codex Texts under the WTO SPS Agreement. The Committee was informed that the CCGP would be considering a document on the status of Codex texts under TBT Agreement. The Committee also noted the decisions of the Committee on Food Additives and Contaminants and the Committee on Methods of Analysis and Sampling relevant to its current work on the standards.
5. The Committee was informed about the work of the Codex Committee on Food Hygiene on the development of the general Code of Hygienic Practice for the Transport of Foodstuffs in Bulk and Semi-Packed Foodstuffs.
6. Following the question raised by the Delegation of Malaysia with regard to the advisory nature of the Code of Practice, the Committee agreed to discuss this issue under Agenda Item 4 Draft Revised Code of Practice for Storage and Transport of Edible Fats and Oils.

REVISION OF CURRENT STANDARDS (Agenda Item 3) DRAFT REVISED STANDARD FOR OLIVE OILS AND OLIVE POMACE OILS (Agenda Item 3a)³

7. The Committee recalled that the Draft Standard had been returned to Step 6 for redrafting in order to include the amendments introduced in the Olive Oil Standard of the International Olive Oil Council (IOOC). The draft was revised taking into account the amendments made to the IOOC Standard since November 1996 and the written comments presented at the last session of the Committee, and was circulated for comments in document CX/FO 99/3 in November 1998.
8. The Observer from the EC informed the Committee that the standard for olive oil was currently being reconsidered in the European Community in the framework of the revision of the Common Agricultural Policy, which might entail a revision of the classification of oils and further pointed out that

¹ CX/FO 99/1

² CX/FO 99/2

³ CX/FO 99/3, CX/FO 99-3-Add.1 (comments of France, Spain, Turkey), CRD 7 (Australia, Canada, Japan, IOOC, IUPAC), CRD 12 (Cuba)

several provisions in the standard did not correspond to the current EC legislation, especially the following: the definitions of refined oils and refined pomace oils, which were not allowed in the EC: the organoleptic criteria; and the labelling of free acidity. In addition the IOOC was also currently revising the standard and was likely to introduce significant changes to its provisions in the near future. The Observer therefore proposed to defer consideration of the standard until such time as the revisions underway in the EC and the IOOC were completed, which would allow the Committee to incorporate the relevant amendments into the text. This position was supported by the Delegations of Italy, Spain and Greece, which stressed the importance of olive oil production in their country, and by the Delegations of France and Portugal.

9. The Delegation of Tunisia pointed out that the current definitions of olive oils were in conformity with the current IOOC Agreement, which had not been revised so far, and stressed the need to proceed with the discussion of the Codex standard; although some differences might exist with the IOOC standard, these could be addressed through consideration of the draft standard in the Committee. Several delegations expressed their concern with the proposal to defer consideration of the standard as it had already been discussed extensively and returned to Step 6 in order to harmonize it with the IOOC text; it did not appear from the comments received that the current revised draft raised problems of principle, and some countries were unaware that such problems existed until the present session.

10. The Committee agreed that it would not be feasible to finalize the standard at the current session in view of the significant problems encountered by some delegations of European producing countries and agreed that it should not be discussed in detail at this stage, but that those countries should be encouraged to resolve their difficulties so that the Committee could continue its work at the next session.

11. The Delegation of Switzerland suggested that, since some problems essentially affected European countries, consideration might be given to the establishment of a Regional Standard for olive oil.

12. The Observer from the EC expressed the view that a Codex standard for olive oils might not be necessary as there was already an IOOC standard and that, from a practical point of view, it appeared easier to amend the IOOC standard on a regular basis. However, several countries stressed that, although olive oil was produced in specific regions, it was traded world-wide and a Codex standard was necessary for the purposes of international trade.

Status of the Draft Revised Standard for Olive Oils and Olive Pomace Oils

13. The Committee agreed to return the Draft Standard to Step 6 for redrafting in the light of the changes which might be introduced in the IOOC standard and possibly in the EC standard at a later date, in order to develop a harmonized text; the revised draft would be circulated for comments and consideration by the next session.

REVISION OF CURRENT STANDARDS (Agenda Item 3) DRAFT STANDARD FOR NAMED VEGETABLE OILS (Agenda Item 3b)⁴

14. The Committee recalled that the Draft Standard had been returned to Step 6 by the Commission for further comments and consideration by the Committee as a number of issues had not yet been fully resolved. The Committee considered the Draft Standard section by section in the light of the comments received and made the following amendments.

General aspects

15. The Delegation of the United Kingdom proposed to reconsider the overall need for this standard and other standards under discussion by the Committee and stressed the need to reassess the Scope and contents to ensure that only essential provisions were included in the standard; the Committee might also wish to

⁴ CX/FO 99/4, (comments of United Kingdom, Japan, Thailand, United States, Singapore, Brazil, Canada, South Africa, Germany, EFEMA, FEDIOL), CX/FO 99/4-Add. 2 (Malaysia, United States, Netherlands), CRD 2 (annotated text with comments), CRD 10 (Brazil), CRD 15 (Report of the WG on Methods of Analysis), CRD 17 (Report of the WG on the GLC Ranges, Tables 1, 2, 3 and 4)

consider the transfer of non-essential provisions to another type of document, to be determined in the future. The Delegation also proposed to consider the opportunity to integrate all current standards into a single standard, as many common provisions existed between the three standards under consideration.

16. Several delegations supported the continuation of current work on the standard in its present form, in view of the considerable importance of vegetable oils in international trade, and as significant progress had already been made in the revision of the text. It was also agreed that the current draft standards should remain separate at this stage, as they covered distinct products and as they had already been simplified by grouping individual oils and fats under two general standards.

17. The Committee agreed to proceed with the review of the standard in its present form with a view to its finalization and noted that the simplification of the text would be considered under the relevant sections, where applicable, especially as regards non-essential provisions.

Preamble

18. The Committee recognized that the Annex included provisions in addition to essential quality factors and to ensure that the intention of the Committee was clear, agreed to replace the current Preamble (referring to acceptance) with the wording approved by the 22nd Session of the Commission in such cases, as follows:

The Appendix to this standard is intended for voluntary application by commercial partners and not for application by governments

19. The Committee agreed that a similar wording referring to the provisions of the Annex would be included in all other standards under consideration, as a consequential amendment.

1. Scope

20. The Committee discussed how far the standard should cover oils intended for further processing (to make them fit for human consumption), and recalled that the current standards applied only to edible oils for direct consumption. Some delegations and the Observer from IFMA expressed the view that international trade concerned crude oils and that provisions should therefore be made for them in the standard; it was also noted that Table 1 on Composition referred to crude oils. Other delegations supported the current text which applied only to oils intended for human consumption and excluded further processing. The Delegation of the Philippines expressed the view that the Scope should be retained and exclude oils of different fatty acid composition, which were still subject to study and review.

21. The Committee recalled that the provisions in the draft reflected the scope of the individual standards and intended to describe vegetable oils for direct consumption. Were crude oils to be included in the standard, current provisions might not correspond to the characteristics of such oils, as the present text covered edible oils and was necessarily more restrictive. The Committee noted that the inclusion of non-edible oils in the Scope might entail a complete revision of the standard, and recognized that it was not desirable at this stage.

22. The Committee therefore agreed that the priority at this stage was to finalize the current standard and that reference should be made to oils for human consumption. However, it also recognized that further work might be required on specifications for crude oils, in view of their importance in trade, and that such provisions might be considered at a later date.

23. The Committee agreed to delete the reference to further processing in order to make the definition more generally applicable and to specify in the Scope that the standard "applies to vegetable oils described in Section 2.1 presented in a state for human consumption".

2. Description

2.1 Product Definition

24. The Delegation of Germany proposed to align the definitions with the current revision of ISO Standard on Oilseeds Nomenclature (ISO 5507: 1992). Some delegations pointed out that this was a new proposal and that there had been no time to consider whether the taxonomic changes actually corresponded to the species covered by the oilseeds included in the standard.

25. The Committee agreed to make the following editorial corrections to the current names, for clarification purposes :

- Babassu: *Orbygnia spp.*
- Coconut: *Cocos nucifera* L.
- Cottonseed: *Gossypium spp.*, (as different species produce cottonseed oil)
- Brown and Yellow Mustard: *Brassica juncea* (L.) Czernajew and Cossen

26. The Delegation of Germany proposed to delete the reference to *Brassica hirta* in the definition of "Mustardseed", and to delete *Brassica juncea* and *Brassica tournefortii* in the description of "Rapeseed", as it was more exact to describe it as *Brassica napus* and *Brassica rapa*. The Committee had an exchange of views on these proposals but could not come to a conclusion and agreed to leave the section unchanged at this stage.

27. The Delegation of India pointed out that high erucic acid rapeseed oil was regularly consumed in that country without any adverse effects to health, and expressed the view that the scientific basis of health concerns was not well established. As the Delegation expressed concern that the provisions in the standard might prevent the marketing of this oil, the Committee recalled that the current description of "rapeseed oil" covered all types of rapeseed oils, including that with high erucic acid, and that "low erucic acid rapeseed oil" was a different product.

28. The Committee discussed the proposal from the delegation of Canada concerning a reference to "canola" for low erucic acid rapeseed oil. Some delegations supported this proposal, while other delegations pointed out that this name was not recognized by the consumers in their countries and may create confusion. The Committee agreed that this was proposed as an alternative name and that this question should be addressed through labelling, as the name of the product should provide clear information to the consumer. The reference to "canola" was therefore added to the list of usual names (see also para 48).

29. The Committee had an exchange of views on the opportunity of including the following types of oils: High Oleic Acid Safflower Oils (proposed by Japan) and High Oleic Acid Sunflower Oil (proposed by France). It was recalled that the last session had agreed to identify those oils which would require further work, and interested countries had been asked to provide relevant information in CL 1997/2-FO.

30. The Delegation of the United Kingdom expressed the view that the Committee should discuss the general approach to the inclusion of oils from new varieties or with specific changes in composition, and consider the questions to be addressed before undertaking new work on such oils, with a view to their inclusion in the current standard.

31. In reply to a question, the Delegation of Japan indicated that the trade in High Oleic Acid Safflower Oils was increasing and that in view of the demand on the market and its specific characteristics, the inclusion of specific provisions in the standard was justified. The Delegation of France recalled that the last session had requested interested countries to provide relevant information on additional oils and the provisions which should be considered for inclusion in the standards. As these elements had been provided in writing, the Committee agreed that a decision could be taken on the development of new work for these oils, although the corresponding provisions could not be integrated in the draft at this stage, and should be considered through the Step Procedure.

32. The Delegation of the Netherlands proposed to establish criteria to determine whether a new standard or an amendment to the standards was necessary to include vegetable oils before taking a decision on specific proposals. Other delegations proposed to refer to information requested by the Committee rather than to formal criteria, especially as Criteria for the Establishment of Work Priorities already existed in Codex. The Committee agreed that a decision could be taken on the specific proposals for new work mentioned above, and that the question of criteria should be considered as related to future work, as this question was likely to arise in the future.

33. The Committee agreed to undertake new work on additional provisions for High Oleic Acid Safflower Oils and High Oleic Acid Sunflower Oil. Subject to the approval of the 23rd Session of the Commission, the relevant Proposed Draft Amendments, to be prepared respectively by the Delegations of Japan and France, would be circulated at Step 3 for comments and consideration by the next session. It was also noted that if consensus was reached on these provisions, the next session had the possibility to forward the proposed drafts to Step 5 and 8 with the omission of Steps 6 and 7.

34. The Committee agreed on the following text to clarify the relationship of new proposals with the Standard for Named Vegetable Oils and to specify the information required when proposing the addition of new oils to the standard.

- *Level of international trade - volume, value and pattern of current or expected/potential trade;*
- *Scope - justification for inclusion within the scope of the Standard and evidence that the oil is to be presented in a state for human consumption;*
- *Taxonomic information - full details of all species of plant from which the oil is derived; and, where appropriate,*
- *Extent of difference - the extent to which the proposed new oil differs from those included in the current [Draft] Standard for Named Vegetable Oils, including for example such factors as variations in the chemical composition and/or the physical properties and/or the nutritional aspects or properties, of the oil.*
- *In addition to the above, submissions should include any other relevant information, together with details of the proposed 'Essential Composition and Quality Factors'.*

2.2 Other Definitions

2.2.2 Virgin Oils and 2.2.3 Cold Pressed Oils

35. The Committee agreed to specify that "the nature of the oil" was not altered (rather than "the oil") as this was relevant for virgin oils, in order to clarify that the characteristics were not altered by heat treatment. It was noted that reference to "the oil" was sufficient for cold pressed oils subjected only to mechanical processing

36. The Committee agreed to the proposal of the Delegation of the United States to include examples of mechanical procedures, i.e. expelling and pressing, both for virgin and cold-pressed oils.

37. The Committee referred to the written comments of Australia, proposing that the GLC ranges and some non-essential quality factors should be deleted from the standard since they were not justified on grounds of public health, they were difficult to enforce and they might restrict trade. The Committee noted that in view of the work already accomplished in the development of the standard and as these criteria were valuable to commercial partners, a fundamental reconsideration of the contents of the Annex was not warranted at this stage. However, it was possible to consider the need for non-essential criteria on a case-by case basis as part of the current discussion. The Committee reasserted the view that the GLC ranges were an essential element to determine the composition of the product and decided to retain it in the body of the standard.

3 Essential Composition and Quality Factors

3.1 GLC Ranges of Fatty Acids Composition

38. The Committee had an exchange of views on the need to include a reference to samples falling “significantly” outside the ranges in order to take into account the coefficient variations in the standard methods of analysis. Some delegations pointed out that it would then be necessary to define the extent to which the values found might differ from the standard, or to specify the sampling plans used, as well as the nature of the samples. The Committee also noted that changes in composition relating to specific geographic conditions should be taken into account. It was also noted that many comments had been put forward to suggest changes to Table 1 and to Tables 2, 3 and 4

39. In order to facilitate discussions and in view of the highly technical nature of the issues, the Committee agreed to convene an *ad hoc* Working Group⁵ chaired by Ms. Morin (France) in order to review the introductory paragraph to Table 1 and the amendments to the ranges in that Table, and also to consider the figures included in Tables 2,3 and 4.

40. The Working Group informed the Committee that it had considered the data proposed with the understanding that they were based on several samples of commercially grown varieties with known authenticity, using internationally recognized methods. Following this principle, all the changes proposed had been considered, which had allowed the Working Group to agree on the revised Table presented in CRD 17. The Delegation of the Philippines expressed its reservation on the fatty acid values for Coconut Oil for C18:3, C20:0 and C20:1 as tests carried out in the Philippines showed that these acids were not detectable in coconut oil and therefore the corresponding values should read as “Non Detectable”. The Committee agreed to the revised values proposed in CRD 17 for Table 1 and expressed its appreciation to Ms. Morin and the Working Group for their constructive work on a complex issue.

41. The Committee also agreed to the proposal of the Working Group for an amended introductory paragraph to clarify the contents of the Table; the reference to samples falling “*significantly* outside the appropriate ranges” was deleted and replaced with “samples falling within the ranges” and complying with the standard. A sentence was added to the effect that supplementary criteria might be considered to confirm compliance with the standard in view of natural geographical and/or climatic variations.

42. In view of the above discussion, the title of the Table was amended to read: “*Fatty Acid Composition of Vegetable Oils as Determined by GLC from authentic samples (expressed as percentage of total fatty acids)*”, with a footnote referring to data taken from the species listed in Section 2., for clarification purposes. The Delegation of Egypt expressed the view that the title of the Table should specify whether it applied to crude or to refined oils, as this was relevant for certain oils, especially cottonseed oil. The Committee noted that in general there was no significant difference between the GLC ranges of crude and refined oils, and agreed to retain the current title at this stage, while noting that this question could be further considered at a later date.

43. The Committee noted that it might be necessary to reconsider the values on a regular basis if further data was provided on fatty acid composition for specific vegetable oils, in order to update the standard in the light of all available scientific and technical information.

4 Food Additives

⁵ France, Brazil, Canada, Germany, Hungary, Italy, India, Malaysia, Philippines, United Kingdom, United States, FOSFA and AOCS

44. In section 4.1, the Committee agreed with the proposal of the Delegation of Cuba to exclude the use of additives in cold-pressed oils, in addition to the current text mentioning only virgin oils.

45. The Committee recalled that the section on additives had been endorsed by the 29th Session of the CCFAC (1997) and agreed to leave it unchanged, although a number of proposals had been put forward in the comments. It was also noted that in the framework of the elaboration of the General Standard for Food Additives, member countries had the opportunity to present their comments directly to the CCFAC on all classes of additives under discussion. This decision was also applied to the other draft standards under consideration.

46. The Delegation of Germany reasserted its objection to the use or the levels of use of additives with a low ADI, especially BHA BHT and TBHQ, since the ADI might be exceeded with the current levels of use, which might raise serious health concerns.

6. Food Hygiene

47. The Committee noted that the 30th Session of the Committee on Food Hygiene had amended the general provisions for inclusion in the commodity standards⁶ and agreed to introduce the revised wording in this standard. It was also agreed to include it in the other standards under consideration as a consequential amendment.

7. Labelling

7.1 Name of the Food

48. With reference to the earlier discussion on the inclusion of "canola" as a synonym for Low Erucic Acid Rapeseed Oil in Section 2. Description, the Committee had an exchange of views on the labelling to be required when one of the names was not common in some countries (see para. 28). The Delegation of Sweden pointed out that the use of the term "canola" was not consistent with the EC legislation. The Committee recognized the need to provide clear information to the consumer on the nature of the product and agreed to add the following sentence to the section:

When more than one name is given for a product in Section 2.1, the labelling of that product must include one of those names acceptable in the country of use

8. Methods of Analysis and Sampling

49. The Chairman of the Working Group Methods of Analysis⁷, Dr. R. Wood (United Kingdom) presented its report, included in CRD 15. The Committee noted the proposals made by the Working Group and agreed to incorporate the amendments and corrections proposed in the relevant sections of the standard. The Committee expressed its appreciation to Dr. Wood and to the Working Group for their useful work to update this section.

50. In reply to a question from the Delegation of Cuba concerning the methods of analysis for the determination of food additives, the Secretariat recalled that the Committee on Food Additives and Contaminants had proposed several such methods, which had been adopted by the last session of the Commission (ALINORM 97/12, Appendix IV). These methods were not specified in the standards as they were of a general application for all foods, and they would be included in the revised version of Codex Volume 13 (Methods of Analysis and Sampling).

Appendix

51. The Committee referred to its earlier decision to include a Preamble on the applicability of the Appendix at the beginning of the standard and agreed to repeat it at the beginning of the Appendix for clarification purposes. It was agreed that this decision would apply consequentially to other draft standards under consideration.

⁶ ALINORM 99/13, Appendix VI

⁷ United Kingdom, Germany, Malaysia, United States, AOCS, FOSFA/ISO/IUPAC

52. The Delegation of the United Kingdom expressed the view that the provisions in the Annex were not relevant to ensure consumers' health protection or fair trade practices and should therefore be removed from the standard. The Delegation noted that their inclusion in other types of texts, such as industry codes, might be considered later. Other delegations however pointed out that these provisions provided useful information and advice to industry and trade operators, and it was preferable to retain them in Codex standards for ease of reference. The Committee agreed to retain the current format of the Appendix and made the following amendments to the current text.

1.8 Peroxide Value

53. Several delegations and the Observer from IFMA proposed to amend the peroxide value to 10 meq of active oxygen/kg oil for refined oils and 15 meq for cold-pressed and virgin oils, since the current values (respectively 5 meq and 10 meq) were too restrictive and did not reflect current practice in trade. It was also pointed out that the oxidation of cold-pressed and virgin oils was more rapid than refined oils and that a value of 10 meq for those oils might create significant trade problems. The Observer from IFMA indicated that the peroxide value depended on time and temperature, and that the lower values could not be maintained in several regions due to climatic conditions; in addition, requirements for a low peroxide value might encourage an excessive use of antioxidants.

54. The Delegation of Cuba pointed out that the peroxide value was an essential quality factor, which should be kept as low as possible; if appropriate precautions were taken during transport and storage it should not increase to a level of 10 meq, and the value of 5 meq should be retained. The Delegation of Germany supported this view and noted that, as it was common in commercial contracts to specify a value of around 1 meq, the higher figure of 10 meq did not correspond to current practice in trade.

55. Some delegations proposed to retain the higher figure (10 and 15 meq) and to specify that the value depended on the intended use of the oils. Other delegations pointed out that this was not practical as in general, the destination of the oil was not known at the export stage. Some delegations recalled that the previous standard referred to values of 10 and 15 meq and that no satisfactory scientific arguments had been provided to justify a reduction of the initial figures.

56. After a detailed discussion on this issue, the Committee agreed that the section would refer to peroxide values of "up to 10 meq for refined oils and 15 meq for cold-pressed and virgin oils", and introduced a similar amendment in the Standard for Fats and Oils not Covered by Individual Standards as a consequential amendment.

1.4 Soap Content - 1.5 Iron - 1.6 Copper

57. The Delegation of the United States expressed the view that the values for Soap Content, Iron, and Copper were too high to maintain good quality of the oil.

Tables 2, 3, and 4

58. The Committee agreed to the proposals of the Working Group as presented in CRD 17 concerning the revised values to be included in the Tables. Some minor changes were made to Table 2 (Chemical and Physical Properties) and it was noted that the references concerning Stable Carbon Isotope Ratio (Part A of the Table) would be provided for inclusion in the final standard.

59. The Titles of Table 3 (Desmethylsterols) and Table 4 (Tocopherols and Tocotrienols), were amended to reflect that the levels corresponded to crude vegetable oils "*from authentic samples*", which was consistent with the approach taken for Table 1. Some changes were made to the figures in the Tables in the light of the comments received and considered by the Working Group.

60. The Delegation of Malaysia pointed out that the values for desmethylsterols were expressed in percentage of total sterols, whereas the levels of tocopherols and tocotrienols were expressed in mg/kg of oil, and proposed that their expression should be harmonized. Some delegations noted that this question had been discussed in the Working Group, but it was not possible at this stage to amend the expression of the values as this would entail complete redrafting of the tables. The Committee recognized that this question should be addressed at a future date, as part of the regular updating of the standard, as had been agreed in the case of Table 1 (see para. 43).

61. The Committee agreed that considerable progress had been made to revise and update the draft in the light of all comments received, and the Chairman expressed its appreciation to the Committee for coming to a consensus on complex and technical issues, in order to finalize a standard which would be generally acceptable to all countries concerned.

Status of the Draft Standard for Named Vegetable Oils

62. The Committee agreed to forward the Draft Standard to the 23rd Session of the Commission for adoption at Step 8 (see Appendix II).

DRAFT STANDARD FOR NAMED ANIMAL FATS⁸ (Agenda Item 3 (c))

63. The Committee noted the decisions reached on different sections while discussing the Draft Standard for Named Vegetable Oils and agreed that those decisions would apply consequentially to all other standards where relevant.

Preamble

64. The Committee decided to use the same wording as agreed earlier in the Draft Standard for Named Vegetable Oils (see para. 18).

1. Scope

65. In order to be consistent with the earlier decision made on the Scope of the Draft Standard for Named Vegetable Oils (see para. 23) the Committee decided to include a similar wording and amended the Scope as follows:

This standard applies to the animal fats listed in Section 2 presented in a state for human consumption.

⁸ ALINORM 99/17, Appendix II; CX/FO 99/5 (Comments of UK, France, Spain, UNEGA); CX/FO 99/5-Add.1 (Comments of Germany, Malaysia, US, Netherlands); CRD 7 (Comments of Australia and Thailand).

2. Description

2.3 Premier Jus

66. The Committee agreed to delete the reference to a specific temperature for Premier Jus because, in view of current industrial rendering processes, the temperature mentioned (60°C) was not always appropriate for complete water removal, especially when a “humid” process was applied, and therefore to ensure the microbiological safety of the product.

3. Essential Composition and Quality Factors

3.1 GLC Ranges of Fatty Acid Composition

67. The Committee agreed to insert the following sentence after the title of the Table for clarification purposes:

Samples falling within appropriate ranges specified below are in compliance with the standard.

68. The Committee noted a proposal from the Delegation of France for some amendments, on the basis of numerous analyses carried out by scientific laboratories in recent years, and consequently amended the ranges for some fatty acids in the Table.

4. Food Additives

69. The Committee reiterated its position regarding the applicability of earlier decisions to the Section on Food Additives (see para. 45).

6. Hygiene

70. See para 47.

7. Labelling

71. The Committee updated the reference to the Codex General Standard for the Labelling of Prepackaged Foods with the latest amendment.

8. Methods of Analysis and Sampling

72. The Committee agreed to the proposals of the *ad hoc* Working Group on Methods of Analysis and Sampling concerning this standard and amended the Section as proposed (CRD 15).

Appendix Preamble

73. The Committee agreed to amend the Preamble as agreed earlier (see para. 51).

1. Quality Characteristics

1.1 Colour

74. The Committee agreed that the provisions for Lard colour should be replaced with “white to cream” in order describe more precisely the characteristics of the product.

1.8 Acid Value

75. The Committee agreed to amend the values for Premier Jus from 2.5 to 2.0 mg KOH/g fat and Rendered Pork Fat from 2.0 to 2.5 mg KOH/g fat as it reflected current trade practice in the world.

1.9 Peroxide Value

76. The Committee had an extensive debate on the peroxide value. Some delegations proposed to distinguish between three categories of fat with different values as follows: 10 meq for Unrefined Porcine Fats and 5 meq for Unrefined Bovine Fats and Refined Bovine and Porcine Fats, while other delegations argued that there were no clear justification for the lower values and suggested to retain the levels used in the current standard. The Delegation of France supported separate values for different kinds of fats. For the sake of consistency the Committee agreed to a single figure "up to 10 meq/kg fat" for all types of animal fats. The Delegations of United Kingdom, Germany and Cuba expressed their reservations in this regard (see also paras 53-56).

2. Chemical and Physical Characteristics

77. The Committee accepted the proposal of the Delegation of France to clarify some values and replaced them as follows: the Relative density for Premier Jus in Section 2.1 from 0.893 to 0.904 (40° C/water at 20° C), the Iodine value ranges (Wijs) in Section 2.5 for Lard from 45-70 to 55-65, for Rendered pork fat from 45-70 to 60-72, for Premier Jus from 32-47 to 36-47 and for Tallow from 32-50 to 40-53 as these reflected current industry practice.

3. Methods of Analysis and Sampling

78. The Committee agreed to the proposals of the *ad hoc* Working Group on Methods of Analysis and Sampling and amended Section 3 as proposed in CRD 15.

Status of the Draft Standard for Named Animal Fats

79. The Committee agreed to advance the Draft Standard for Named Animal Fats to Step 8 for adoption by the 23rd Session of the Commission (see Appendix III).

DRAFT REVISED STANDARD FOR EDIBLE FATS AND OILS NOT COVERED BY INDIVIDUAL STANDARDS⁹ (Agenda Item 3 (d))

Preamble

80. The Committee agreed to amend the Preamble and to use the same wording as in the Draft Standard for Named Vegetable Oils (see para. 18).

1. Scope

81. The Committee agreed to amend the Scope using the same wording as in other standards (see para. 23). It also agreed to delete the reference to oils and fats subjected to further processing with the understanding that it was already covered by the first part of the sentence, and to retain the examples of modification processes. The first paragraph of the Scope was therefore amended as follows:

This standard applies to oils and fats and mixtures thereof in a state for human consumption. It includes oils and fats that have been subjected to processes of modification (such as transesterification or hydrogenation) or fractionation.

⁹ ALINORM 99/17, Appendix III; CX/FO 99/6 (Comments of UK, France, Spain); CX/FO 99/6-Add.1 (Comments of Germany, Malaysia, US, Netherlands); CRD 7 (Comments of Australia, Thailand).

2. Descriptions

2.2 Virgin Fats and Oils - 2.3 Cold Pressed Fats and Oils

82. The Committee agreed to include examples of mechanical procedures "e.g. expelling and pressing", to be consistent with the Draft Standard for Named Vegetable Oils (see para. 36).

3. Food Additives

83. In order to be consistent with its earlier decisions, the Committee agreed to add the reference prohibiting the use of additives in cold pressed oils in section 3.1, and to use the provisions applicable to Vegetable Oils and to Named Animal Fats in the rest of the section (see paras 45, 69).

5. Hygiene

84. See para. 47.

6. Labelling

85. The Committee updated the reference to the General Standard for the Labelling of Prepackaged Foods with the latest amendment.

7. Methods of Analysis and Sampling

86. The Committee accepted the proposals of the *ad hoc* Working Group (CRD 15) and amended this section of the standard accordingly.

Appendix Preamble

87. The Committee decided to use the same wording as agreed earlier in the Draft Standard for Named Vegetable Oils (see para. 51).

1.6 Iron

88. In order to better reflect current practice world-wide, the Committee accepted the proposal of the Delegation of Thailand to increase the Maximum level of iron in Refined fats and oils from 1.5 mg/kg to 2.5 mg/kg.

1.9 Peroxide value

89. The Committee agreed to specify values of "Up to 15 meq/kg oil" for Virgin oils and Cold pressed fats and oils, and "Up to 10 meq/kg oil" for Other fats and oils in order to be consistent with earlier decisions on this matter.

2. Methods of Analysis and Sampling

90. The Committee agreed to the proposal of the *ad hoc* Working Group on Methods of Analysis and Sampling and amended the Section as proposed in CRD 15.

Status of the Draft Revised Standard for Edible Fats and Oils not Covered by Individual Standards

91. The Committee agreed to advance the Draft Revised Standard to Step 8 for adoption by the 23rd Session of the Commission (see Appendix IV).

DRAFT REVISED CODE OF PRACTICE FOR THE TRANSPORT OF FATS AND OILS IN BULK (Agenda Item 4)¹⁰

92. The Committee recalled that the Draft Code had been returned to Step 6 by the 22nd Session of the Commission for further comments and consideration by the Committee, as it appeared that no consensus existed on some important issues related to the prevention of contamination. Further comments as Step 6 had been requested in CL 1997/20-FO (July 1997) and CL 1998/41 (November 1998). The Committee considered the Code section by section in the light of the comments received and made the following amendments.

Use of the Code

93. The Delegation of Malaysia was of the view that Codex had a role in setting up codes of an advisory nature for voluntary application by industry, and that such advisory provisions were not for application by governments. The Delegation proposed to retain the statement that the Code was advisory in nature and to add that it was “for voluntary application by the industry”.

94. The Committee recalled that the 22nd Session of the Commission had recommended to avoid using the terms “advisory” and “mandatory” in view of the confusion created by such terms, and agreed to delete the sentence on the advisory nature of the Code from the text.

95. The Delegation of Malaysia expressed the view that a decision to delete this reference would be premature as this question was still under discussion in the CCGP and the Commission, and Codex recognized the elaboration of advisory texts. The Secretariat recalled that the CCGP was still discussing the status of Codex texts and especially non-essential provisions in the standards under the TBT Agreement; such provisions were described as “advisory” for simplification purposes in some sections of the CCGP report in order to reflect the discussions of that Committee. However, the Commission had made a general recommendation concerning the use of this term in Codex texts, in order to reflect that Codex texts were not mandatory but used as a reference in international trade. As regards voluntary application by commercial partners, this concept had been introduced by the Commission to describe provisions which were not essential to ensure health protection and fair trade practices, and the CCFO had agreed that it applied to some sections of the standards under consideration. No such proposal had been made by the Commission in relation to Codex texts related to food hygiene and food safety. The provisions of the Code of Practice were intended to ensure health protection, and such requirements were consistently considered as the responsibility of governments in the framework of Codex. In addition, the Committee recalled that according to the reply from the SPS Committee, no distinction was made between different categories of Codex texts for the purposes of the SPS Agreement, as their relevance was determined by their contents.

96. The Committee agreed to the proposal of the Delegation of Norway to delete the recommendation that “newcomers to the field” use the principles of the Code as it should be generally relevant for all operators. The Committee recognized that this sentence was not really necessary as it was clear that the provisions in a Recommended Code of Practice were of a general application, and it was deleted.

97. The Committee agreed to transfer the sentence on the applicability of the code “to all crude or processed edible oils and fats” to the Scope for clarification purposes. The reference to the information available from other associations was deleted to ensure that the Code should be self-contained, and the complete section on Use of the Code was therefore deleted.

98. The Delegation of Malaysia expressed its strong reservation to the deletion of the first sentence concerning the advisory nature of the Code and the deletion of the third sentence relating to the use of the code by “newcomers to the field”.

1. Scope

¹⁰ ALINORM 97/17, Appendix IV, CX/FO 99/7 (comments of United Kingdom, Canada, France, Spain, UNEGA), CX/FO 99/7-Add.1 (France, Malaysia, United States), CRD 5 (annotated draft) CRD 7 (Spain, Thailand, FEDIOL, IFMA), CRD 9 (FOSFA and NIOP List of Acceptable Previous Cargoes), CRD 11 (Malaysia).

99. The Committee agreed that the Code should apply “to the handling, storage and transport of all crude or processed edible fats and oils in bulk” without any additional text, as this definition adequately reflected the Scope. The reference to minimum requirements was deleted as it did not appear necessary.

100. The Committee noted that since the revision of the Code had been initiated, the Recommended International Code of Practice - General Principles of Food Hygiene (GPFH) had been adopted, and the Commission had recommended that Codes of Hygienic Practice refer to the General Principles and include only additional material which was specific to the commodity concerned¹¹.

101. The Delegation of Germany indicated that it supported dedicated transport and recalled that the CCFH was currently elaborating a Code of Hygienic Practice for the Transport and Storage of Foods in Bulk and Semi-Packed Foodstuffs¹², and stressed the necessity for consistency in the approach followed for fats and oils in bulk. The Observer from the EC informed the Committee that dedicated transport for foodstuffs was a basic principle of EC legislation for transport in bulk, although some derogations could be made for maritime transport, and expressed the view that the format of the GPFH and the recommendations of the CCFH should be followed; however, that should not prevent the revision of the current draft.

102. The Committee had an exchange of views on the opportunity of redrafting the Code in the light of recent developments and recommendations in the area of food hygiene, especially the integration of the GPFH and the HACCP approach. Several delegations pointed out however that considerable work had been done to update the code, that the CCFH Code explicitly excluded fats and oils from its Scope and that the revision should therefore proceed independently in view of the specificity of fats and oils. The Committee agreed to proceed with the finalization of the code as this was a high priority, with the understanding that the CCFH would be informed of this work and that the format of the code might be revised at a later date.

2.1.3 Contamination

103. The Committee recalled that the current text referring to several lists included in Annex 2- Bibliography did not adequately address the problems of contamination, as there had been no consensus on that section so far, and agreed that specific lists should be developed in the framework of the Code. The Committee recognized that two approaches existed concerning the prevention of contamination from previous cargoes: the establishment of a list of banned previous cargoes or a list of acceptable previous cargoes. The Delegation of the Netherlands pointed out that a mechanism should be found to determine whether the substances which were not included in any list could be allowed.

104. The Delegation of Germany and the Observer from the EC informed the Committee that EC legislation, which ensured effective control of contamination, referred only to a List of Acceptable Cargoes, which had been prepared on the basis of risk assessment carried out by the Scientific Committee for Foods, and referred to the need for such evaluation of the lists to be included in the Code. The Committee noted that the lists could be submitted for consideration and advice to the CCFAC or the CCFH, but that they should be developed initially by the CCFO in view of its specific expertise in this area.

105. The Committee noted that this question could not be entirely solved at this stage, as careful consideration should be given to the contents of the list but decided in principle that reference would be made to both lists, and to the cargoes which were not covered by any of them, in order to facilitate the finalization of the text. The section was therefore amended to reflect that contamination was avoided as follows:

- by segregated tank systems with previous cargoes included in the Codex List of Acceptable Previous Cargoes in Appendix 2 (to be developed)
- by the rejection of tanks with cargoes included in the Codex List of Banned Immediate Previous Cargoes in Appendix 3 (to be developed)
- the cargoes which were not on any list could be used if agreed upon by competent authorities in the importing countries

¹¹ Guidelines on the Elaboration and/or Revision of Codes of Hygienic Practice for Specific Commodities (Procedural Manual, page 56)

¹² ALINORM 99/13A, Appendix IV

106. Some delegations and the Observer of FOSFA drew the attention of the Committee to the difficulties which might be created by the third categories of cargoes, and by the existence of several lists, which could cause confusion in international trade.

107. The Committee agreed that a Circular Letter would ask for information on the Lists of Acceptable and of Banned Cargoes used in member countries and international organizations, in order to develop Proposed Draft Lists (Appendices 2 and 3) for circulation at Step 3 and consideration by the next session of the Committee. Other issues related to the development of the lists would also be considered as required, in particular the establishment of criteria for inclusion of substances on the lists.

108. In order to provide relevant advice in the current text, and as an interim measure, the Committee agreed to clarify that until the lists were finalized, reference could be made to the data in the Appendix on Bibliography (which was renumbered as Appendix 4).

3.1.5 Heating Facilities - Tanks

109. The Committee agreed to clarify the second introductory paragraph to reflect that heating means should be such as to avoid contamination by design, construction and procedures, and to add that "*Suitable means of heating are as follows*" before listing heating means.

3.1.5(c) External Heat Exchangers

110. The Committee retained the first sentence describing the use of external heat exchangers and added a second sentence specifying that their design and construction should be such as to avoid contamination and damage to the oil, and that "there should be procedures in place to detect incidents of leakage should they occur".

111. The Committee agreed that the use of Thermal Heating Fluids could be allowed on the basis of safety evaluation and inspection procedures, and that evidence to that effect might be required by competent authorities. The current text was therefore replaced with the following sentence:

Although hot water and steam are the preferred means of heating, other substances may be used on the basis of safety and risk evaluation and inspection procedures. Upon request by competent authorities, evidence may be required to demonstrate that the heating media employed have been properly evaluated and safely used.

112. The Committee noted that it was preferable to refer to "competent authorities" in general, without mentioning importing countries as the exporting countries might also apply specific procedures in this area. It was also agreed not to refer to contracting parties. The Delegation of Norway indicated that it could be necessary in the future to consider the application of the HACCP approach to prevent contamination, although the present text was acceptable as an interim measure.

3.1.8 Control of Temperature

113. The reference to "*automatic* control devices" was deleted as it was recognized that not all ships were equipped with automatic systems, and it was sufficient to mention "control devices".

3.1.10 Inert Gas Protection

114. The sentence referring to further details to be obtained from gas manufacturers was deleted as the Code should be self-contained.

3.2.3 Insulation and Heating

115. A sentence on the use of steam for clearing pipelines in temperate and cold climates was added for clarification purposes, as proposed by the Delegation of Malaysia.

4.1.3 Temperature during Loading and Discharge

116. The Committee had an exchange of views on the proposal from the Delegation of Spain to replace the reference to “soft grades” (of oils) with “low viscosity grades” and “hard grades” with “high viscosity grades” as related to the temperatures applied. The Observer of IFMA pointed out that the loading temperature was not determined by the viscosity but by the melting point, and the Committee agreed to amend the text accordingly.

4.1.4 Loading and Unloading Sequence

117. The reference to “fresh oil” was replaced by “new oil” for clarification purposes. The Committee discussed the opportunity of retaining the requirements concerning the first pumpings in separate tanks for quality checks. The Observer from FOSFA pointed out that for fats and oils intended for direct human consumption first pumpings should necessarily be collected in a separate tank. The Committee agreed to retain this sentence and to specify that oils should be collected in separate tanks “where possible”.

Appendix 1

118. The Committee agreed to delete the subtitle mentioning the temperatures ranges recommended by the International Association of Seed Crushers as the Code should be self-contained and reference to other organizations should be avoided.

119. The Committee agreed to introduce the following amendments to temperatures, as proposed in written comments: 1) storage and bulk shipments for lard and tallow, to take into account the constraints of industrial operators (proposed by France and Netherlands), and 2) loading and discharge for lard, to harmonize it with ISO 5555/91 (proposed by UNEGGA).

Appendix 2 - Bibliography

120. The Appendix was renumbered as Appendix 4 in view of the earlier decision to develop Appendix 2 (List of Acceptable Previous Cargoes) and Appendix 3 (List of Banned Immediate previous Cargoes). The Bibliography in the Annex was retained, as an interim measure and pending the development of the Lists (see para 105).

121. The Delegation of Malaysia, while supporting the adoption of the revised text in view of the considerable progress achieved, reiterated its position that the advisory nature of the Code should be specified, as originally intended, and that the advice of the Executive Committee and the Commission should be sought on this matter.

122. The Delegation of the United States pointed out that the Code should be submitted to the CCFH, although that should not delay its adoption at Step 8 by the Commission. The Committee noted that the endorsement of hygiene provisions by the CCFH was the usual procedure. Following its adoption by the Commission, the Code would therefore be submitted to CCFH, and the advice provided would be taken into account as part of the ongoing review of the Code.

Status of the Draft Revised Code of Practice for the Transport of Edible Fats and Oils in Bulk

123. The Committee agreed to forward the Draft Revised Code to the 23rd Session of the Commission for adoption at Step 8 (see Appendix V). The Committee further agreed that Proposed Draft Appendices 2 and 3 would be circulated for comments at Step 3 and consideration at the next session, subject to the approval of the Commission.

PROPOSED DRAFT STANDARD FOR FAT SPREADS AND BLENDED SPREADS¹³ (Agenda Item 5)

¹³ ALINORM 97/17, Appendix VI; CX/FO 99/8 (Comments of UK, Japan, Spain, Brazil, IDF, IFMA); CRD/6 (annotated draft).

124. The Chairman, while introducing the Proposed Draft, recalled that the key issue was the need for such a standard as the Committee was aware that the Codex Committee on Milk and Milk Products was developing a Proposed Draft Standard for Dairy Spreads in parallel.

125. Several delegations and the Observer from IFMA supported the elaboration of the Proposed Draft by this Committee in view of the significant exchanges of such products, notably Margarine and Minarine, in international trade. The Delegation of Cuba stressed the necessity of having an updated Codex standard for all types of margarines. The Committee also recognized the necessity of replacing the existing Codex standards on Margarine and Minarine which were too restrictive. It was also noted that the CCMMP was developing a standard for Dairy Spreads, a different kind of product, which was therefore outside the Scope of the Proposed Draft Standard for Fat Spreads and Blended Spreads. The Committee recognized that there was clear support to continue the elaboration of the Proposed Draft Standard, while maintaining consistency in all respects, as appropriate, with the Proposed Draft Standard for Dairy Spreads, and proceeded with its consideration it section by section.

126. Since the Proposed Draft had no appendices the Preamble was irrelevant and therefore was deleted.

Scope

127. The Committee had an extensive debate on the rationale and figures for maximum and minimum percentages of fat in the final product. Some delegations while supporting a maximum percentage proposed different values or the exclusion of some types of fat. The Delegation of Japan felt that establishing a maximum value was unnecessary since margarine and blended spreads were used not only as spreads but also for baking, frying and cooking. Some delegations while favouring a minimum value, proposed different figures. The Delegation of the United States urged the Committee to consider the establishment of the minimum value very carefully since technological innovations probably might offer to the consumers spreads with less than 10% fat, and by that time the Proposed Draft Standard might have become obsolete. Recognizing that controversial opinions existed and as a compromise, the Committee agreed to clarify the first sentence of the Scope as follows:

This standard applies to fat products, containing not less than 10% and no more than 90% fat, intended primarily for use as spreads.

128. The Delegation of India expressed its reservation in this regard and indicated that a product containing more than 80% fat was called margarine in their country.

129. Regarding the proposal of IFMA to exclude mayonnaise and spreadable cheese the Committee agreed to amend the third sentence of the Scope to read as follows:

It only includes margarine and products used for similar purposes intended for use as spreads and excludes products with a fat content of less than 2/3 of the dry matter (excluding salt).

130. In order to clarify the distinction with the Proposed Draft Standard being developed by the CCMMP the Committee agreed to amend the last sentence of the Scope as follows:

Butter and dairy spreads are not covered by this Standard.

2. Description

2.1 Fat Spreads and Blended Fat Spreads

131. The delegations of Brazil, the Netherlands, United States and the Observer of IFMA supported the deletion of the last part of the sentence (referring to "firm and spreadable at 20° C") in order to allow the marketing of products in liquid form, while some other delegations opposed it. In order to achieve consensus for the time being, the Committee accepted the proposal of the Chairman to put the last part of the sentence in square brackets for further comments and consideration by the next session of the Committee. The Delegation of Germany expressed its reservation in this regard.

2.2 Edible Fats and Oils

132. In order to clarify that synthetic fats were not included in the description of "Edible fats and oils" the Committee accepted the proposal of the Delegation of the United Kingdom to add the following sentence:

They are of vegetable or animal (including milk) or marine origin.

133. The Committee accepted the following proposals of the Delegation of Malaysia: to amend the wording "glycerides" to "triglycerides" and to specify that edible fats and oils may contain small amounts of other lipids such as "partial glycerides". It also agreed to add more examples on processes of modification such as "fractionation, interesterification" in the last sentence of the paragraph. It was also accepted, as proposed by the Delegation of Germany, to clarify that "processes of modification" referred exclusively to physical and chemical types of modification. Consequently the sentence was amended as follows:

This includes fats and oils that have been subjected to processes of physical or chemical modification including fractionation, interesterification and hydrogenation.

3. Essential Composition and Quality Factors

3.1 Fat Spreads

134. The Committee had an extensive debate on this issue as several controversial proposals on milk fat content were put forward for Section 3.1.1.1 concerning the maximum milk fat contents. The Delegation of Japan proposed that milk fat content in fat spreads be no more than 50%, and that it should be more than 50% for blended spreads, because such classification was clear to the consumers. The Delegation of India drew the attention of the Committee to the fact that in its country spreads containing milk fat were called "mixed fats spreads", whereas the use of milk fat in "fat spreads" was not allowed. These Delegations questioned the reasoning for the inclusion of up to 3% milk fat in fat spreads as it might be used to give a butter flavour to fat spreads. It was clarified that the Committee had agreed on such a value at an earlier stage in the elaboration of the text, and it was necessary due to the technological specificity of the production and the addition of some milk protein to improve the quality of fat spreads. The Committee decided to leave the text as currently drafted.

Average/typical fat content

135. The Committee discussed the reasoning for the classification of margarine/fat spreads and the ranges of fat percentage for such classification. The Delegation of Malaysia drew the attention of the Committee to the wording "typical", which had no real meaning and therefore should be substituted by "range". After an exchange of views the Committee agreed to refer only to "fat content". The Delegation of Brazil referring to its written comments indicated that terms like half margarine or three-quarter fat margarine did not correspond to what was normally used in their country and such terms might be confusing to consumers when translated into other languages. The Delegation therefore proposed that standards should also allow other alternative names for these products. This view was supported by some other delegations. It was also noted that this question might be addressed better in the Labelling Section. The Delegation of the Netherlands drew the attention of the Committee to the fact that products such as Margarine with 80% fat and Minarine with 40% fat were well established and known by consumers, and that the proposed classification was based on these percentages. The Delegation of Egypt put forward a new classification based only on different ranges of fat contents in margarine. As several different views were expressed, and as a starting point the Committee accepted the classification as proposed in the text. The Committee also accepted the proposal to keep the fat content for margarine within the range of 80-90%. For the other fat spreads under (b), (c), and (d) the Committee agreed to retain the figures as originally drafted and to put them in square brackets for further comments and consideration.

Status of the Proposed Draft Standard for Fat Spreads and Blended Spreads

136. Due to time constraints the Committee was unable to proceed further with the consideration of the text and decided to return the Proposed Draft, as amended during the current session, to Step 3 for additional comments and consideration by the next session (see Appendix VI).

OTHER BUSINESS, FUTURE WORK AND DATE AND PLACE OF NEXT SESSION

(Agenda Item 6)**Future Work**

137. The Committee noted that its future work would include the following items:

- Draft Standard for Olive Oils and Olive Pomace Oils at Step 7;
- Proposed Draft Amendments to the Standard on Named Vegetable Oils:
 - High Oleic Acid Sunflower Oil (prepared by France);
 - High Oleic Acid Safflower Oil (prepared by Japan);
- Proposed Draft Amendment to the Code of Practice for the Transport of Edible Fats and Oils in Bulk - Appendices 2 and 3 on Lists of Acceptable and Banned Previous Cargoes and related issues;
- Proposed Draft Standard for Fat Spreads and Blended Spreads at Step 4.

138. The Delegation of India proposed to include the development of provisions for Rice Bran Oil, in view of its important production in several Asian countries and its specific nutritional qualities. The Committee agreed that the Delegation would submit the relevant information to determine the need for the inclusion of this oil in the Standards for Named Vegetable Oils, as previously agreed under Agenda Item 3b (see para 34).

Date and Place of Next Session

139. The Committee was informed that its next session was tentatively scheduled to be held in London, United Kingdom, in the Spring of 2001, the final arrangements to be determined in consultation between the host country and Codex Secretariats, subject to the approval of the Commission.

SUMMARY STATUS OF WORK

Subject Matter	Step	Action by	Document Reference in ALINORM 99/17
Draft Standard for Named Vegetable Oils	8	Governments 23rd CAC	para. 62 Appendix II
Draft Standard for Named Animal Fats	8	Governments 23rd CAC	para. 79 Appendix III
Draft Standard for Fats and Oils not Covered by Individual Standards	8	Governments 23rd CAC	para. 91 Appendix IV
Draft Code of practice for the Transport of Edible Fats and Oils in Bulk	8	Governments 23rd CAC	para. 123 Appendix V
Draft Standard for Olive Oils and Olive Pomace Oils	6	Governments 17th CCFO	para. 13
Proposed Draft Standard for Fat Spreads and Blended Spreads	3	Governments 17th CCFO	para. 126 Appendix VI
Proposed Draft Amendments to the Draft Standard for Named Vegetable Oils: - High Oleic Acid Sunflower Oil - High Oleic Acid Safflower Oil	1/2/3	23rd CAC France/Japan Governments 17th CCFO	para. 33
Proposed Draft Lists of Acceptable and Banned Previous Cargoes	1/2/3	23rd CAC Governments 17th CCFO	para. 107

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DRAFT STANDARD FOR NAMED VEGETABLE OILS
(At Step 8 of the Procedure)

The Appendix to this standard is intended for voluntary application by commercial partners and not for application by governments.

1. SCOPE

This standard applies to the vegetable oils described in Section 2.1 presented in a state for human consumption.

2. DESCRIPTION

2.1 Product Definition

(Note: synonyms are in brackets immediately following the name of the oil)

- 2.1.1 **Arachis Oil** (Peanut Oil; Groundnut Oil) is derived from groundnuts (seeds of *Arachis hypogaea* L.).
- 2.1.2 **Babassu Oil** is derived from the kernel of the fruit of several varieties of the palm *Orbignya spp.*
- 2.1.3 **Coconut Oil** is derived from the kernel of the coconut (*Cocos nucifera* L.).
- 2.1.4 **Cottonseed Oil** is derived from the seeds of various cultivated species of *Gossypium spp.*
- 2.1.5 **Grapeseed Oil** is derived from the seeds of the grape (*Vitis vinifera* L.).
- 2.1.6 **Maize Oil** (Corn Oil) is derived from maize germ (the embryos of *Zea mays* L.).
- 2.1.7 **Mustardseed Oil** is derived from the seeds of white mustard (*Sinapis alba* L. or *Brassica hirta Moench*), brown and yellow mustard (*Brassica juncea* (L.) Czernajew and Cossen) and of black mustard (*Brassica nigra* (L.) Koch).
- 2.1.8 **Palm Kernel Oil** is derived from the kernel of the fruit of the oil palm (*Elaeis guineensis*).
- 2.1.9 **Palm Oil** is derived from the fleshy mesocarp of the fruit of the oil palm (*Elaeis guineensis*).
- 2.1.10 **Palm Olein** is the liquid fraction derived from the fractionation of palm oil (described above).
- 2.1.11 **Palm Stearin** is the high-melting fraction derived from the fractionation of palm oil (described above).
- 2.1.12 **Rapeseed Oil** (Turnip rape oil; Colza oil; Ravison oil; Sarson Oil; Toria Oil) is produced from seeds of *Brassica napus* L., *Brassica campestris* L. *Brassica juncea* L. and *Brassica tournefortii* Gouan species.
- 2.1.13 **Rapeseed Oil - (Low Erucic Acid)** (low erucic acid turnip rape oil; low erucic acid colza oil; canola oil) is produced from low erucic acid oil-bearing seeds of varieties derived from the *Brassica napus* L., *Brassica campestris* L. and *Brassica juncea* L., species.
- 2.1.14 **Safflowerseed Oil** (Safflower Oil; Carthamus Oil; Kurdee Oil) is derived from safflower seeds (seeds of *Carthamus tinctorius* L.).
- 2.1.15 **Sesameseed Oil** (Sesame Oil; Gingelly Oil; Benne Oil; Ben Oil; Till Oil; Tillie Oil) is derived from Sesame seeds (seeds of *Sesamum indicum* L.).
- 2.1.16 **Soya Bean Oil** (Soybean Oil) is derived from soya beans (seeds of *Glycine max* (L.) Merr.).

2.1.17 **Sunflowerseed Oil** (Sunflower Oil) is derived from Sunflower seeds (seeds of *Helianthus annuus* L.).

2.2 Other Definitions

2.2.1 Edible vegetable oils are foodstuffs which are composed primarily of glycerides of fatty acids being obtained only from vegetable sources. They may contain small amounts of other lipids such as phosphatides, of unsaponifiable constituents and of free fatty acids naturally present in the fat or oil.

2.2.2 Virgin oils are obtained, without altering the nature of the oil, by mechanical procedures, e.g. expelling or pressing, and the application of heat only. They may have been purified by washing with water, settling, filtering and centrifuging only.

2.2.3 Cold pressed oils are obtained, without altering the oil, by mechanical procedures only, e.g. expelling or pressing, without the application of heat. They may have been purified by washing with water, settling, filtering and centrifuging only.

3 **ESSENTIAL COMPOSITION AND QUALITY FACTORS**

3.1 GLC ranges of fatty acid composition (expressed as percentages)

Samples falling within the appropriate ranges specified in Table 1 are in compliance with this standard. Supplementary criteria, for example national geographical and/or climatic variations, may be considered, as necessary, to confirm that a sample is in compliance with the standard.

3.2 Low-erucic acid rapeseed oil must not contain more than 2% erucic acid (as % of total fatty acids);

3.3 Slip point

Palm olein	not more than 24°C
Palm stearin	not less than 44°C

4 **FOOD ADDITIVES**

4.1 No food additives are permitted in virgin or cold pressed oils.

4.2 Flavours

Natural flavours and their identical synthetic equivalents, and other synthetic flavours, except those which are known to represent a toxic hazard.

4.3 Antioxidants

	<u>Maximum Level</u>
304 Ascorbyl palmitate	) 500 mg/kg
305 Ascorbyl stearate	) individually or in combination
306 Mixed tocopherols concentrate	GMP
307 Alpha-tocopherol	GMP
308 Synthetic gamma-tocopherol	GMP
309 Synthetic delta-tocopherol	GMP
310 Propyl gallate	100 mg/kg
319 Tertiary butyl hydroquinone (TBHQ)	120 mg/kg
320 Butylated hydroxyanisole (BHA)	175 mg/kg
321 Butylated hydroxytoluene (BHT)	75 mg/kg
Any combination of gallates, BHA and BHT and/or TBHQ	200 mg/kg but limits above not to be exceeded
389 Dilauryl thiodipropionate	200 mg/kg

4.4 Antioxidant Synergists

330 Citric acid	GMP
331 Sodium citrates	GMP
384 Isopropyl citrates	) 100 mg/kg individually or
Monoglyceride citrate	) in combination

4.5 Anti-foaming Agents (oils for deepfrying)

900a Polydimethylsiloxane	10 mg/kg
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5. **CONTAMINANTS**

5. Heavy metals

The products covered by the provisions of this standard shall comply with maximum limits being established by the Codex Alimentarius Commission but in the meantime the following limits will apply:

Maximum permissible concentration

Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

5.2 Pesticide residues

The products covered by the provisions of this standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

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**

7.1 Name of the Food

The product shall be labelled in accordance with the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991; Codex Alimentarius, Volume 1A). The name of the oil shall conform to the descriptions given in Section 2 of this standard.

Where more than one name is given for a product in Section 2.1, the labelling of that product must include one of those names acceptable in the country of use.

7.2 Labelling of Non-Retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, 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 ANALYSIS AND SAMPLING

8.1 Determination of GLC ranges of fatty acid composition

According to IUPAC 2.301, 2.302 and 2.304 or ISO 5508: 1990/5509: 1999.

8.2 Determination of slip point

According to ISO 6321: 1991 and Amendment 1: 1998 for all oils, or AOCS Cc 3-25 (97) for Palm Oils only.

8.3 Determination of arsenic

According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

8.4 Determination of lead

According to IUPAC 2.632, AOAC 994.02 or ISO 12193: 1994.

Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples¹ (expressed as percentage of total fatty acids) (see Section 3.1 of the standard)

Fatty acid	Arachis oil	Babassu oil	Coconut oil	Cottonseed oil	Grapeseed oil	Maize oil	Mustard-seed oil	Palm oil	Palm kernel oil
C6:0	ND	ND	ND-0.6	ND	ND	ND	ND	ND	ND-0.8
C8:0	ND	2.6-7.3	4.6-10.0	ND	ND	ND	ND	ND	2.4-6.2
C10:0	ND	1.2-7.6	5.5-8.0	ND	ND	ND	ND	ND	2.6-5.0
C12:0	ND-0.1	40.0-55.0	45.1-50.3	ND-0.2	ND-0.5	ND-0.3	ND	ND-0.5	45.0-55.0
C14:0	ND-0.1	11.0-27.0	16.8-21.0	0.6-1.0	ND-0.3	ND-0.3	ND-1.0	0.5-2.0	14.0-18.0
C16:0	8.0-14.0	5.2-11.0	7.5-10.2	21.4-26.4	5.5-11.0	8.6-16.5	0.5-4.5	39.3-47.5	6.5-10.0
C16:1	ND-0.2	ND	ND	ND-1.2	ND-1.2	ND-0.5	ND-0.5	ND-0.6	ND-0.2
C17:0	ND-0.1	ND	ND	ND-0.1	ND-0.2	ND-0.1	ND	ND-0.2	ND
C17:1	ND-0.1	ND	ND	ND-0.1	ND-0.1	ND-0.1	ND	ND	ND
C18:0	1.0-4.5	1.8-7.4	2.0-4.0	2.1-3.3	3.0-6.5	ND-3.3	0.5-2.0	3.5- 6.0	1.0-3.0
C18:1	35.0-67.0	9.0-20.0	5.0-10.0	14.7-21.7	12.0-28.0	20.0-42.2	8.0-23.0	36.0-44.0	12.0-19.0
C18:2	13.0-43.0	1.4-6.6	1.0- 2.5	46.7-58.2	58.0-78.0	34.0-65.6	10.0-24.0	9.0-12.0	1.0-3.5
C18:3	ND-0.3	ND	ND- 0.2	ND-0.4	ND-1.0	ND-2.0	6.0-18.0	ND-0.5	ND-0.2
C20:0	1.0-2.0	ND	ND-0.2	0.2-0.5	ND-1.0	0.3-1.0	ND-1.5	ND-1.0	ND-0.2
C20:1	0.7-1.7	ND	ND-0.2	ND-0.1	ND-0.3	0.2-0.6	5.0-13.0	ND-0.4	ND-0.2
C20:2	ND	ND	ND	ND-0.1	ND	ND-0.1	ND-1.0	ND	ND
C22:0	1.5-4.5	ND	ND	ND-0.6	ND-0.5	ND-0.5	0.2-2.5	ND-0.2	ND-0.2
C22:1	ND-0.3	ND	ND	ND-0.3	ND-0.3	ND-0.3	22.0-50.0	ND	ND
C22:2	ND	ND	ND	ND-0.1	ND	ND	ND-1.0	ND	ND
C24:0	0.5-2.5	ND	ND	ND-0.1	ND-0.2	ND-0.5	ND-0.5	ND	ND
C24:1	ND-0.3	ND	ND	ND	ND	ND	0.5-2.5	ND	ND

ND - non detectable, defined as $\leq 0.05\%$

¹ Data taken from species as listed in Section 2.

Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples¹ (expressed as percentage of total fatty acids) (see Section 3.1 of the standard) (continued)

Fatty acid	Palm olein	Palm stearin	Rapeseed oil	Rapeseed oil (low erucic acid)	Safflowerseed oil	Sesameseed oil	Soya bean oil	Sunflowerseed oil
C6:0	ND	ND	ND	ND	ND	ND	ND	ND
C8:0	ND	ND	ND	ND	ND	ND	ND	ND
C10:0	ND	ND	ND	ND	ND	ND	ND	ND
C12:0	0.1-0.5	0.1-0.5	ND-0.2	ND-0.2	ND-0.2	ND-0.1	ND-0.1	ND-0.1
C14:0	0.5-1.5	1.0-2.0	1.5-6.0	2.5-7.0	5.3-8.0	7.9-10.2	ND-0.2	ND-0.2
C16:0	38.0-43.5	48.0-74.0	ND-0.6	ND-0.6	ND-0.2	0.1-0.2	8.0-13.5	5.0-7.6
C16:1	ND-0.6	ND-0.2	ND-3.0	ND-0.3	ND-0.1	ND-0.2	ND-0.2	ND-0.3
C17:0	ND-0.2	ND-0.2	ND-0.1	ND-0.3	ND-0.1	ND-0.1	ND-0.1	ND-0.2
C17:1	ND-0.1	ND-0.1	ND-0.1	ND-0.3	ND-0.1	ND-0.1	ND-0.1	ND-0.1
C18:0	3.5-5.0	3.9-6.0	0.5-3.1	0.8-3.0	1.9-2.9	4.8-6.1	2.0-5.4	2.7-6.5
C18:1	39.8-46.0	15.5-36.0	8.0-60.0	51.0-70.0	8.4-21.3	35.9-42.3	17.7-28.0	14.0-39.4
C18:2	10.0-13.5	3.0-10.0	11.0-23.0	15.0-30.0	67.8-83.2	41.5-47.9	49.8-59.0	48.3-74.0
C18:3	ND-0.6	ND-0.5	5.0-13.0	5.0-14.0	ND-0.1	0.3-0.4	5.0-11.0	ND-0.3
C20:0	ND-0.6	ND-1.0	ND-3.0	0.2-1.2	0.2-0.4	0.3-0.6	0.1-0.6	0.1-0.5
C20:1	ND-0.4	ND-0.4	3.0-15.0	0.1-4.3	0.1-0.3	ND-0.3	ND-0.5	ND-0.3
C20:2	ND	ND	ND-1.0	ND-0.1	ND	ND	ND-0.1	ND
C22:0	ND-0.2	ND-0.2	ND-2.0	ND-0.6	ND-1.0	ND-0.3	ND-0.7	0.3-1.5
C22:1	ND	ND	> 2.0-60.0	ND-2.0	ND-1.8	ND	ND-0.3	ND-0.3
C22:2	ND	ND	ND-2.0	ND-0.1	ND	ND	ND	ND-0.3
C24:0	ND	ND	ND-2.0	ND-0.3	ND-0.2	ND-0.3	ND-0.5	ND-0.5
C24:1	ND	ND	ND-3.0	ND-0.4	ND-0.2	ND	ND	ND

ND - non detectable, defined as $\leq 0.05\%$

¹ Data taken from species as listed in Section 2.

OTHER QUALITY AND COMPOSITION FACTORS

This text is intended for voluntary application by commercial partners and not for application by governments.

1. Quality characteristics

1.1 The colour, odour and taste of each product shall be characteristic of the designated product. It shall be free from foreign and rancid odour and taste.

		<u>Maximum level</u>
1.2	Matter volatile at 105°C	0.2 % m/m
1.3	Insoluble impurities	0.05 % m/m
1.4	Soap content	0.005 % m/m
1.5	Iron (Fe):	
	Refined oils	1.5 mg/kg
	Virgin oils	5.0 mg/kg
1.6	Copper (Cu)	
	Refined oils	0.1 mg/kg
	Virgin oils	0.4 mg/kg
1.7	Acid value	
	Refined oils	0.6 mg KOH/g Oil
	Cold pressed and virgin oils	4.0 mg KOH/g Oil
	Virgin palm oils	10.0 mg KOH/g Oil
1.8	Peroxide value:	
	Refined oils	up to 10 milliequivalents of active oxygen/kg oil
	Cold pressed and virgin oils	up to 15 milliequivalents of active oxygen/kg oil

2. Composition characteristics

2.1 The arachidic and higher fatty acid content of arachis oil should not exceed 48g/kg.

2.2 The Reichert values for coconut, palm kernel and babassu oils should be in the ranges 6-8.5, 4-7 and 4.5-6.5, respectively.

2.3 The Polenske values for coconut, palm kernel and babassu oils should be in the ranges 13-18, 8-12 and 8-10, respectively.

2.4 The Halphen test for cottonseed oil should be positive.

2.5 The erythrodiol content of grapeseed oil should be more than 2% of the total sterols.

2.6 The total carotenoids (as beta-carotene) for unbleached palm oil, unbleached palm olein and unbleached palm stearin should be in the range 500-2000, 550-2500 and 300-1500 mg/kg, respectively.

2.7 The Crismer value for low erucic acid rapeseed oil should be in the range 67-70.

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2.8 The concentration of brassicasterol in low erucic acid rapeseed oil should be greater than 5% of total sterols.

2.9 The Baudouin test should be positive for sesameseed oil.

3. Chemical and physical characteristics

Chemical and Physical Characteristics are given in Table 2.

4. Identity characteristics

4.1 Levels of desmethylsterols in vegetable oils as a percentage of total sterols are given in Table 3.

4.2 Levels of tocopherols and tocotrienols in vegetable oils are given in Table 4.

5. Methods of analysis and sampling

5.1 Determination of matter volatile at 105°C

According to IUPAC 2.601 or ISO 662: 1988.

5.2 Determination of insoluble impurities

According to IUPAC 2.604 or ISO 663: 1999.

5.3 Determination of soap content

According to BS 684 Section 2.5.

5.4 Determination of copper and iron

According to ISO 8294: 1994, IUPAC 2.631 or AOAC 990.05.

5.5 Determination of relative density

According to IUPAC 2.101, with the appropriate conversion factor.

5.6 Determination of apparent density

According to ISO 6883: 1995, with the appropriate conversion factor.

5.7 Determination of refractive index

According to IUPAC 2.102 or ISO 6320: 1995.

5.8 Determination of saponification value (SV)

According to IUPAC 2.202 or ISO 3657: 1988.

5.9 Determination of iodine value (IV)

Wijs - according to IUPAC 2.205/1, ISO 3961: 1996, AOAC 993.20, or AOCS Cd 1d-92 (97), or by calculation - AOCS Cd 1b-87 (97). The method to be used for specific named vegetable oils is stipulated in the standard.

5.10 Determination of unsaponifiable matter

According to IUPAC 2.401 (part 1-5) or ISO 3596-1: 1988 and Amendment 1 1997, and ISO 3596-2: 1988 and Amendment 1 1999.

5.11 Determination of peroxide value (PV)

According to IUPAC 2.501 (as amended), AOCS Cd 8b - 90 (97) or ISO 3961: 1998.

5.12 Determination of total carotenoids

According to BS 684 Section 2.20.

5.13 Determination of acidity

According to IUPAC 2.201 or ISO 660: 1996.

5.14 Determination of sterol content

According to ISO 6799: 1991, or IUPAC 2.403.

5.15 Determination of tocopherol content

According to IUPAC 2.432 or ISO 9936: 1997.

5.16 Halphen test

According to AOCS Cb 1-25 (97).

5.17 Crismar value

According to AOCS Cb 4-35 (97) and AOCS Ca 5a-40 (97).

5.18 Baudouin test (modified villavecchia test or sesameseed oil test)

According to AOCS Cb 2-40 (97).

5.19 Reichert value and polenske value

According to IUPAC 2.204.

Table 2: Chemical and physical characteristics of crude vegetable oils (see Appendix of the standard)

	Arachis oil	Babassu oil	Coconut oil	Cottonseed oil	Grapeseed oil	Maize oil	Mustard-seed oil	Palm oil	Palm kernel
RELATIVE DENSITY (x° C/water at 20°C)	0.914-0.917 x=20°C	0.914-0.917 x=25°C	0.908-0.921 x=40°C	0.918-0.926 x=20°C	0.923-0.926 x=20°C	0.917-0.925 x=20°C	0.910-0.921 x=20°C	0.891-0.899 x=50°C	0.899-0.914 x=40°C
APPARENT DENSITY (g/ml)	1.460-1.465	1.448-1.451	1.448-1.450	1.458-1.466	1.473-1.477	1.465-1.468	1.461-1.469	0.889-0.895 (50°C)	1.448-1.452
REFRACTIVE INDEX (N D 40°C)	187-196	245-256	248-265	189-198	188-194	187-195	168-184	1.454- 1.456 at 50°C	230-254
SAPONIFICATION VALUE (mg KOH/g oil)	86-107	10-18	6.3-10.6	100-115	130-138	107-135	92-125	50.0-55.0	14.1-21.0
IODINE VALUE*	≤ 10	≤ 12	≤ 15	≤ 15	≤ 20	≤ 28	≤ 15	≤ 12	≤ 10
UNSAPONIFIABLE MATTER (g/kg)									
STABLE CARBON ISOTOPE RATIO **						-13.71 to -16.36			

* Iodine values shown in the Table were calculated from the fatty acid composition with the exception of those for Palm oil, Palm kernel oil, Palm Olein, Palm Stearin (Wijs method)

** References to be included to publications from CSL & Leatherhead Food RA

Table 2: Chemical and physical characteristics of crude vegetable oils (see Appendix of the standard) (continued)

	Palm Olein	Palm Stearin	Rapeseed oil	Rapeseed oil (low erucic acid)	Safflowerseed oil	Sesameseed oil	Soya bean oil	Sunflowerseed oil
RELATIVE DENSITY (x° C/water at 20°C)	0.899-0.920 x=40°C	0.881-0.891 x=60°C	0.910-0.920 x=20°C	0.914-0.920 x=20°C	0.922-0.927 x=20°C	0.915-0.923 x=20°C	0.919-0.925 x=20°C	0.918-0.923 x=20°C
APPARENT DENSITY (g/ml)	0896-0.898 at 40°C	0.881-0.885 at 60°C	1.465-1.469	1.465-1.467	1.467-1.470	1.465-1.469	1.466-1.470	1.461- 1.468
REFRACTIVE INDEX (N D 40°C)	1.458-1.460	1.447-1.452 at 60°C	168-181	182-193	186-198	187-195	189-195	188-194
SAPONIFICATION VALUE (mg KOH/g oil)	194-202	193-205	94-120	105-126	136-148	104-120	124-139	118-141
IODINE VALUE*	≥ 56	≤ 48	≤ 20	≤ 20	≤ 15	≤ 20	≤ 15	≤ 15
UNSAPONIFIABLE MATTER (g/kg)	≤ 13	≤ 9	≤ 20	≤ 20	≤ 15	≤ 20	≤ 15	≤ 15

* Iodine values shown in the Table were calculated from the fatty acid composition with the exception of those for Palm oil, Palm kernel oil, Palm Olein, Palm Stearin (Wijs method)

Table 3: Levels of desmethylsterols in crude vegetable oils from authentic samples ² as a percentage of total sterols (see Appendix 1 of the standard)

	Arachis oil	Babassu oil	Coconut oil	Cotton-seed oil	Grape-seed oil	Maize oil	Palm oil	Palm Kernel oil	Rapeseed oil (low erucic acid)	Safflower seed oil	Sesame-seed oil	Soya bean oil	Sunflower seed oil
CHOLESTEROL	ND-3.8	1.2-1.7	0.6-3.0	0.7-2.3	0.4	0.2-0.6	2.6-6.7	0.6-3.7	0.5-1.3	ND-0.7	0.1-0.2	0.6-1.4	≤ 0.7
BRASSICASTEROL	ND-0.2	ND-0.3	ND-0.3	0.1- 0.3	0.2	ND-0.2	ND	ND-0.8	5.0-13.0	ND-0.4	0.1-0.2	ND-0.3	ND-0.2
CAMPESTEROL	12.0-19.8	17.7-18.7	7.5-11.2	6.4-14.5	10.2	18.6-24.1	18.7-27.5	8.4-12.7	24.7-38.6	9.2-13.3	10.1-20.0	15.8-24.2	7.4-12.9
STIGMASTEROL	5.4-13.2	8.7-9.2	11.4-15.6	2.1-6.8	10.9	4.3-7.7	8.5-13.9	12.0-16.6	≤ 0.9	4.5-9.6	3.4-6.4	14.9-19.1	7.0-11.5
BETA-SITOSTEROL	47.4-64.7	48.2-53.9	32.6-50.7	76.0-87.1	67.4	54.8-66.6	50.2-62.1	62.6-73.1	45.1-57.9	40.2-50.6	57.7-61.9	51-60	56.2-65.0
DELTA-5-AVENASTEROL	8.3-18.8	16.9-20.4	20.0-40.7	1.8-7.3	3.0	4.2-8.2	ND-2.8	1.4-9.0	3.1-6.6	0.8-4.8	6.2-7.8	1.9-3.7	ND-6.9
DELTA-7-STIGMASTEROL	ND-5.1	ND	ND-3.0	ND-1.4	1.0-3.5	1.0-4.2	0.2-2.4	ND-2.1	ND-1.3	13.7-24.6	1.8-7.6	1.4-5.2	7.0-24.0
DELTA-7-AVENASTEROL	ND-5.5	0.4-1.0	ND-3.0	0.8-3.3	0.7	0.7-2.7	ND-5.1	ND-1.4	ND-0.8	2.2-6.3	1.2-5.6	1.0-4.6	3.1-6.5
OTHERS	ND-1.4	ND	ND-3.6	ND-1.5	5.1	ND-2.4	ND	ND-2.7	ND-4.2	0.5-6.4	0.7-9.2	ND-1.8	ND-5.3
TOTAL STEROLS (mg/kg)	900-2900	500-800	400-1200	2700-6400	5800	8000-22100	300-700	700-1400	4800-11300	2100-4600	4500-19000	1800-4100	2400-4600

ND - Non-detectable, defined as ≤ 0.05%

² Data taken from species as listed in Section 2.

Table 4: Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples ³ (mg/kg) (see Appendix 1 of the standard)

	Arachis oil	Babassu oil	Coconut oil	Cotton-seed oil	Grape-seed oil	Maize oil	Palm oil	Palm kernel oil	Rapeseed oil (low erucic acid)	Safflower seed oil	Sesame-seed oil	Soya bean oil	Sunflower seed oil
ALPHA-TOCOPHEROL	49-373	ND	ND-17	136-674	16-38	23-573	4-193	ND-44	100-386	234-660	ND-3.3	9-352	403-935
BETA-TOCOPHEROL	ND-41	ND	ND-11	ND-29	ND-89	ND-356	ND-234	ND-248	ND-140	ND-17	ND	ND-36	ND-45
GAMMA-TOCOPHEROL	88-389	ND	ND-14	138-746	ND-73	268-2468	ND-526	ND-257	189-753	ND-12	521-983	89-2307	ND-34
DELTA-TOCOPHEROL	ND-22	ND	ND	ND-21	ND-4	23-75	ND-123	ND	ND-22	ND	4-21	154-932	ND-7.0
ALPHA-TOCOTRIENOL	ND	25-46	ND-44	ND	18-107	ND-239	4-336	ND	ND	ND	ND	ND-69	ND
GAMMA-TOCOTRIENOL	ND	32-80	ND-1	ND	115-205	ND-450	14-710	ND-60	ND	ND-12	ND-20	ND-103	ND
DELTA-TOCOTRIENOL	ND	9-10	ND	ND	ND-3.2	ND-20	ND-377	ND	ND	ND	ND	ND	ND
TOTAL (mg/kg)	170-1300	60-130	ND-50	380-1200	240-410	330-3720	150-1500	ND-260	430-2680	240-670	330-1010	600-3370	440-1520

ND - Non-detectable.

Note: Maize oil also contains ND-52 mg/kg beta tocotrienol.

³ Data taken from species as listed in Section 2.

**DRAFT STANDARD FOR NAMED ANIMAL FATS
(At Step 8 of the Procedure)**

The Appendix to this standard is intended for voluntary application by commercial partners and not for application by governments.

1. SCOPE

This standard applies to the animal fats described in Section 2 presented in a state for human consumption.

2. DESCRIPTION**2.1 Lard**

2.1.1 Pure rendered lard is the fat rendered from fresh, clean, sound fatty tissues from swine (*Sus scrofa*) in good health, at the time of slaughter, and fit for human consumption. The tissues do not include bones, detached skin, head skin, ears, tails, organs, windpipes, large blood vessels, scrap fat, skimmings, settlings, pressings, and the like, and are reasonably free from muscle tissues and blood.

2.1.2 Lard subject to processing may contain refined lard, lard stearin and hydrogenated lard, or be subject to processes of modification provided that it is clearly labelled.

2.2 Rendered Pork Fat

2.2.1 Rendered Pork Fat is the fat rendered from the tissues and bones of swine (*Sus scrofa*) in good health, at the time of slaughter, and fit for human consumption. It may contain fat from bones (properly cleaned), from detached skin, from head skin, from ears, from tails and from other issues fit for human consumption.

2.2.2 Rendered Pork Fat subject to processing may also contain refined lard, refined rendered pork fat, hydrogenated lard, hydrogenated rendered pork fat, lard stearin and rendered pork fat stearin provided that it is clearly labelled.

2.3 Premier Jus (Oleo Stock) is the product obtained by rendering at low heat the fresh fat (killing fat) of heart, caul, kidney and mesentery collected at the time of slaughter of bovine animals in good health at the time of slaughter and fit for human consumption, as well as cutting fats.

2.4 Edible Tallow

2.4.1 Edible Tallow (Dripping) is the product obtained by rendering the clean, sound, fatty tissues (including trimming and cutting fats), attendant muscles and bones of bovine animals and/or sheep (*Ovis aries*) in good health at the time of slaughter and fit for human consumption.

2.4.2 Edible Tallow subject to processing may contain refined edible tallow, provided that it is clearly labelled.

3. **ESSENTIAL COMPOSITION AND QUALITY FACTORS**

GLC Ranges of Fatty Acid Composition (expressed as percentages)

Samples falling within the appropriate ranges specified below are in compliance with this standard.

	LARD RENDERED PORK FAT	PREMIER JUS TALLOW
C6:0))
C8:0))
C10:0	) < 0.5 in total	) < 0.5 in total
C12:0))
C14:0	1.0-2.5	2-6
C14:ISO	not detected < 0.1	< 0.3
C14:1	< 0.2	0.5-1.5
C15:0	< 0.2	0.2-1.0
C15:ISO	< 0.1	) < 1.5 in total
C15:ANTI ISO	< 0.1)
C16:0	20-30	20-30
C16:1	2.0-4.0	1-5
C16:ISO	< 0.1	< 0.5
C16:2	< 0.1	< 1.0
C17:0	< 1	0.5-2.0
C17:1	< 1	< 1.0
C17:ISO	< 0.1	) < 1.5 in total
C17:ANTI ISO	< 0.1)
C18:0	8-22	15-30
C18:1	35-55	30-45
C18:2	4-12	1-6
C18:3	< 1.5	< 1.5
C20:0	< 1.0	< 0.5
C20:1	< 1.5	< 0.5
C20:2	< 1.0	< 0.1
C20:4	< 1.0	< 0.5
C22:0	< 0.1	< 0.1
C22:1	< 0.5	not detected

4. **FOOD ADDITIVES**

4.1 Colours

The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

	<u>Maximum Level</u>
100 Curcumin or Turmeric	5 mg/kg (calculated as total curcumin)
160a Beta-carotene	25 mg/kg
160b Annatto extracts	10 mg/kg (calculated as total bixin or norbixin)

4.2 Antioxidants

304	Ascorbyl palmitate	) 500 mg/kg
305	Ascorbyl stearate	) individually or in combination
306	Mixed tocopherols concentrate	GMP
307	Alpha-tocopherol	GMP
308	Synthetic gamma-tocopherol	GMP
309	Synthetic delta-tocopherol	GMP
310	Propyl gallate	100 mg/kg
319	Tertiary butyl hydroquinone (TBHQ)	120 mg/kg
320	Butylated hydroxyanisole (BHA)	175 mg/kg
321	Butylated hydroxytoluene (BHT)	75 mg/kg
	Any combination of gallates, BHA and BHT and/or TBHQ	200 mg/kg but limits above not to be exceeded

4.3 Antioxidant Synergists

330	Citric acid	GMP
331	Sodium citrates	GMP
384	Isopropyl citrates	) 100 mg/kg individually or
	Monoglyceride citrate	) in combination

5. **CONTAMINANTS**

5.1 Heavy metals

The products covered by the provisions of this standard shall comply with maximum limits being established by the Codex Alimentarius Commission, but in the meantime the following limits will apply:

Maximum permissible concentration

Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

5.2 Pesticide residues

The products covered by the provisions of this standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

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**

7.1 Name of the Food

The product shall be labelled in accordance with the Codex General Standard for the Labelling of Pre-packaged Foods (Ref. CODEX STAN 1-1985, Rev. 1-1991; Codex Alimentarius, Volume 1A). The name of the fat shall conform to the descriptions given in section 2 of this standard.

7.2 Labelling on Non-Retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, 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 ANALYSIS AND SAMPLING

8.1 Determination of GLC ranges of fatty acid composition

According to IUPAC 2.301, 2.302 and 2.304 or ISO 5508: 1995/ 5509: 1999.

8.2 Determination of arsenic

According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

8.3 Determination of lead

According to IUPAC 2.632, AOAC 994.02 or ISO 12193: 1994.

OTHER QUALITY AND COMPOSITION FACTORS

This text is intended for voluntary application by commercial partners and not for application by governments

1. Quality characteristics

1.1 Colour:

Rendered Pork Fat:	White when solid
Lard	White to cream
Premier Jus:	Creamy white to pale yellow
Edible Tallow:	Off white to pale yellow

1.2 Odour and taste:

Characteristic and free from foreign and rancid odour and taste.

	<u>Maximum level</u>
1.3 Matter volatile at 105°C:	0.3 %
1.4 Insoluble impurities:	0.05 %
1.5 Sodium soap content:	
lard	nil
premier jus	nil
rendered pork fat	0.005 %
edible tallow	0.005 %
1.6 Iron (Fe):	1.5 mg/kg
1.7 Copper (Cu):	0.4 mg/kg
1.8 Acid value:	
lard	1.3 mg KOH/g fat = ffa max 0.65 %
premier jus	2.0 mg KOH/g fat = ffa max 1.00 %
rendered pork fat	2.5 mg KOH/g fat = ffa max 1.25 %
edible tallow	2.5 mg KOH/g fat = ffa max 1.25 %
1.9 Peroxide value:	up to 10 milliequivalents active oxygen/kg fat

2. Chemical and physical characteristics

	Lard	Rendered pork fat	Premier jus	Tallow
2.1 Relative density (40°C/water at 20°C)	0.896-0.904	0.894-0.906	0.893-0.904	0.894-0.904
2.2 Refractive index (N D 40°C)	1.448-1.460	1.448-1.461	1.448-1.460	1.448-1.460
2.3 Titre (°C)	32-45	32-45	42.5-47	40-49
2.4 Saponification value (mg KOH/g fat)	192-203	192-203	190-200	190-202
2.5 Iodine value (Wijs)	55-65	60-72	36-47	40-53

2.6 Unsaponifiable matter (g/kg)	≤ 10	≤ 12	≤ 10	≤ 12
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3. Methods of analysis and sampling

3.1 Determination of matter volatile at 105°C

According to IUPAC 2.601 or ISO 662: 1998.

3.2 Determination of insoluble impurities

According to IUPAC 2.604 or ISO 663: 1999.

3.3 Determination of soap content

According to BS 684 Section 2.5.

3.4 Determination of copper and iron

According to ISO 8294: 1994, IUPAC 2.631 or AOAC 990.05.

3.5 Determination of relative density

According to IUPAC 2.101, with the appropriate conversion factor.

3.6 Determination of refractive index

According to IUPAC 2.102 or ISO 6320: 1995.

3.7 Determination of saponification value (SV)

According to IUPAC 2.202 or ISO 3657: 1988.

3.8 Determination of iodine value (IV)

Wijs-according to IUPAC 2.205/1, ISO 3961: 1996, AOAC 993.20, or AOCS Cd 1d-1992 (97).

3.9 Determination of unsaponifiable matter

According to IUPAC 2.401 (part 1-5) or ISO 3596-1: 1988 and Amendment 1 1997, and ISO 3596-2: 1988 and Amendment 1 1999.

3.10 Determination of peroxide value (PV)

According to IUPAC 2.501 (as amended), AOCS Cd 8b-90 (97) or ISO 3960: 1998.

3.11 Determination of acidity

According to IUPAC 2.201 or ISO 660: 1996.

3.12 Determination of titre

According to ISO 935: 1988, or IUPAC 2.121.

**DRAFT REVISED STANDARD FOR EDIBLE FATS AND OILS
NOT COVERED BY INDIVIDUAL STANDARDS
(At Step 8 of the Procedure)**

The Appendix to this standard is intended for voluntary application by commercial partners and not for application by governments.

1. SCOPE

This standard applies to oils and fats and mixtures thereof in a state for human consumption. It includes oils and fats that have been subjected to processes of modification (such as trans-esterification or hydrogenation) or fractionation.

This standard does not apply to any oil or fat which is covered by one of the following:

- the Codex Standard for Named Animal Fats;
- the Codex Standard for Named Vegetable Oils;
- the Codex Standard for Olive Oils and Olive-pomace Oils.

2. DESCRIPTIONS

2.1 Edible Fats and Oils are foodstuffs defined in Section 1 which are composed of glycerides of fatty acids. They are of vegetable, animal or marine origin. They may contain small amounts of other lipids such as phosphatides, of unsaponifiable constituents and of free fatty acids naturally present in the fat or oil. Fats of animal origin must be produced from animals in good health at the time of slaughter and be fit for human consumption.

2.2 Virgin Fats and Oils are edible vegetable fats and oils obtained, without altering the nature of the oil, by mechanical procedures, e.g. expelling or pressing, and the application of heat only. They may be purified by washing with water, settling, filtering and centrifuging only.

2.3 Cold Pressed Fats and Oils are edible vegetable fats and oils obtained, without altering the oil, by mechanical procedures, e.g. expelling or pressing, without the application of heat. They may have been purified by washing with water, settling, filtering and centrifuging only.

3. FOOD ADDITIVES

3.1 No additives are permitted in virgin or cold pressed oils covered by this standard.

3.2 Colours

No colours are permitted in vegetable oils covered by this standard.

The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum Level
100	Curcumin or Turmeric	5 mg/kg (calculated as total curcumin)
160a	Beta-carotene	25 mg/kg
160b	Annatto extracts	10 mg/kg (calculated as total bixin or norbixin)

3.3 Flavours

Natural flavours and their identical synthetic equivalents and other synthetic flavours, except those which are known to represent a toxic hazard.

3.4 Antioxidants

304	Ascorbyl palmitate	) 500 mg/kg
305	Ascorbyl stearate	) individually or in combination
306	Mixed tocopherols concentrate	GMP
307	Alpha-tocopherol	GMP
308	Synthetic gamma-tocopherol	GMP
309	Synthetic delta-tocopherol	GMP
310	Propyl gallate	100 mg/kg
319	Tertiary butyl hydroquinone (TBHQ)	120 mg/kg
320	Butylated hydroxyanisole (BHA)	175 mg/kg
321	Butylated hydroxytoluene (BHT)	75 mg/kg
	Any combination of gallates, BHA and BHT and/or TBHQ	200 mg/kg but limits above not to be exceeded
389	Dilauryl thiodipropionate	200 mg/kg

3.5 Antioxidant Synergists

330	Citric acid	GMP
331	Sodium citrates	GMP
384	Isopropyl citrates	) 100 mg/kg individually or in combination
	Monoglyceride citrate)

3.6 Anti-foaming Agents (for oils and fats for deepfrying)

900a	Polydimethylsiloxane	10 mg/kg
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4. **CONTAMINANTS**

4.1 Heavy metals

The products covered by the provisions of this standard shall comply with maximum limits being established by the Codex Alimentarius Commission but in the meantime the following limits will apply:

Maximum permissible concentration

Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

4.2 Pesticide residues

The products covered by the provisions of this standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

5. **HYGIENE**

5.1 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.

5.2 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).

6. **LABELLING**

The product shall be labelled in accordance with the Codex General Standard for the Labelling of Pre-packaged Foods (Ref. CODEX STAN 1-1985, Rev. 1-1991; Codex Alimentarius, Volume 1A).

6.1 Name of the Food

6.1.1 The designation "virgin fat" or "virgin oil" may only be used for individual fats or oils conforming to the definition in section 2.2 of this standard.

6.1.2 The designation "cold pressed fat" or "cold pressed oil" may only be used for individual fats or oils conforming to the definition in section 2.3 of this standard.

6.2 Labelling of Non-retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, 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.

7. METHODS OF ANALYSIS AND SAMPLING

7.1 Determination of lead

According to IUPAC 2.632, AOAC 994.02 or ISO 12193: 1994.

7.2 Determination of arsenic

According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

OTHER QUALITY AND COMPOSITION FACTORS

This text is intended for voluntary application by commercial partners and not for application by governments.

1. Quality characteristics

1.1 Colour:

Characteristic of the designated product.

1.2 Odour and taste:

Characteristic of the designated product and free from foreign and rancid odour and taste.

		<u>Maximum level</u>
1.3	Matter volatile at 105°C:	0.2% m/m
1.4	Insoluble impurities:	0.05 % m/m
1.5	Soap content:	0.005 % m/m
1.6	Iron (Fe):	
	Refined fats and oils	2.5 mg/kg
	Virgin fats and oils	5.0 mg/kg
	Cold pressed fats and oils	5.0 mg/kg
1.7	Copper (Cu):	
	Refined fats and oils	0.1 mg/kg
	Virgin fats and oils	0.4 mg/kg
	Cold pressed fats and oils	0.4 mg/kg
1.8	Acid value:	
	Refined fats and oils	0.6 mg KOH/g fat or oil
	Virgin fats and oils	4.0 mg KOH/g fat or oil
	Cold pressed fats and oils	4.0 mg KOH/g fat or oil
1.9	Peroxide value:	
	Virgin oils and cold pressed fats and oils	up to 15 milliequivalents of active oxygen/kg oil
	Other fats and oils	up to 10 milliequivalents of active oxygen/kg oil

2. Methods of analysis and sampling

2.1 Determination of acid value (AV)

According to IUPAC 2.201 or ISO 660: 1996.

2.2 Determination of peroxide value (PV)

According to IUPAC 2.501 (as amended), AOCS Cd 8b - 90 (97) or ISO 3961: 1998.

2.3 Determination of matter volatile at 105 °C

According to IUPAC 2.601 or ISO 662: 1998.

2.4 Determination of insoluble impurities

According to IUPAC 2.604 or ISO 663: 1999.

2.5 Determination of soap content

According to BS 684 Section 2.5.

2.6 Determination of iron

According to IUPAC 2.631, ISO 8294: 1994 or AOAC 990.05.

2.7 Determination of copper

According to IUPAC 2.631, ISO 8294: 1994 or AOAC 990.05.

**DRAFT REVISED RECOMMENDED CODE OF PRACTICE FOR THE STORAGE AND
TRANSPORT OF EDIBLE OILS AND FATS IN BULK
(At Step 8 of the Procedure)**

1. Section I - SCOPE

This Code of Practice applies to the handling, storage and transport of all crude or processed edible oils and fats in bulk.

2. Section II - INTRODUCTION

2.1 General

Three types of deterioration can occur in oils and fats during the operations dealt with in this Code. The susceptibility of oils and fats to deterioration depends upon a number of factors including the type of oil or fat, whether it is crude, partially or fully refined and whether impurities are present. These should be considered when storing and transporting the oil.

2.1.1 Oxidation

Contact of oils and fats with oxygen, present in the atmosphere, causes chemical changes in the product which downgrade the quality. Some of the effects of oxidation may be rectified within an edible oil refinery with some extra processing and, therefore, extra cost. However, the effects may be so severe that rectification is not possible.

Much can be gained by reducing the amount of air contact and this principle is the basis of several of the recommendations. Oxidation proceeds more rapidly as temperature increases, so each operation should be carried out at the lowest practicable temperature. The rate of oxidation is greatly increased by the catalytic action of copper or copper alloys, even when trace amounts (ppm) are present. Because of this, copper and copper alloys must be rigorously excluded from the systems. Other metals, such as iron, also have catalytic effects although less than that of copper.

2.1.2 Hydrolysis

The breakdown of fats to fatty acids is promoted by the presence of water particularly at higher temperatures. Hydrolysis is also promoted by the action of certain micro-organisms. Tanks in which the oil is being stored or shipped should always be clean and dry before use.

2.1.3 Contamination

Undesirable contamination may be from residues of a previous material handled in the equipment, dirt, rain, sea water or through the accidental addition of a different product. In storage installations and ships, particular difficulty may be experienced ensuring cleanliness of valves and pipelines, particularly where they are common for different tanks. Contamination is avoided by good design of the systems, adequate cleaning routines and an effective inspection service, and on ships by the carriage of oils in segregated tank systems in which the previous cargoes are included in the Codex List of Acceptable Previous Cargoes at Appendix 2 of this Code.

Contamination is also avoided by the rejection of tanks which have carried as a last cargo products which are included on the Codex List of Banned Immediate Previous Cargoes at Appendix 3 of this Code.

Previous cargoes not on the Codex Lists of Acceptable or Banned cargoes are only to be used if agreed upon by competent authorities of the importing countries.

Until both lists are completed, practitioners may find the lists and data referred to in the Bibliography at Appendix 4 provide relevant guidance.

3 Section III - STORAGE AND TRANSPORTATION

3.1 Tanks

3.1.1 Land storage tanks

The most suitable shape is the vertical, circular cross-section tank with self-supporting fixed roof, preferably conical in shape. Where possible, tall, narrow tanks are preferred to minimise the surface areas of the contents and, therefore, to minimise contact of the oils or fats with air and the oxygen it contains. Tank bottoms should be conical or sloped (with a sump) to facilitate draining.

All openings such as manholes, inlets, outlets, draining out points, etc., should be made such that they can be locked and/or effectively sealed.

For each installation, the total storage capacity, size and number of tanks need to be related to the size and frequency of intakes, rates of turnover and the number of different products handled etc.

3.1.2 Ships' tanks

The economics of bulk transport requires that a range of cargoes can be carried on one vessel and tank capacities generally vary between 200 to 2,500 tonnes.

Ships tanks differ from land tanks and complete segregation of tanks is achieved by using individual pumps and line systems, each tank having its own dedicated pump and line system.

Mild steel tanks should preferably be coated to prevent attack or corrosion of the mild steel by the cargo. The coating should be approved for contact with food. The trend towards the use of stainless steel for tank construction will remove the need for tank coatings.

Damage to coatings can be caused by abrasion or by using unsuitable cleaning methods leading to local corrosion. The tanks should always be inspected before a cargo of oil or fat is loaded and, if necessary, repairs to the coatings should be carried out.

Ships employed in the trade tend to be categorised as follows:

(a) Bulk tankers:

These range from 15,000 to 40,000 tonnes and have a varying number of different sized tanks, usually with inter-connected valves. They are best suited for the carriage of single oils, in large volumes, where they can be loaded with valves open for fast receipt of the cargo and easier trim of the vessel.

(b) Parcel tankers:

These are more sophisticated ships, mainly in the 15,000 to 40,000 tonne range, designed to carry a variety of different but fully segregated bulk liquids. Each tank may have one of a number of different coatings to suit a particular kind of cargo and each tank, or small group of tanks, will have its own dedicated pipelines and pumps.

(c) Coasters:

The classes of vessel referred to above are ocean going ships that service the major ports of loading and discharge. In addition, there are many small coasters, generally between 750 and 3,000 tonnes, that cover short sea voyages. They are also frequently used to handle transshipment from ocean-going vessels.

(d) Container vessels:

As the name implies, these ships are purpose built to carry containers of uniform dimensions for convenient stowage. They ply between container terminals, whilst the containers themselves can be filled and unloaded at whatever other, frequently inland, point/s may best suit the goods and parties concerned.

3.1.3 Road and rail tankers and bulk liquid containers (ISO tank containers)

Road and rail tankers and bulk liquid containers (ISO tank containers) used to transport oils and fats overland. Where the oils and fats are fully refined and deodorised for direct human consumption, the tank is normally of stainless steel construction or mild steel coated with epoxy resin.

3.1.4 Materials

(a) All materials used in the construction of tanks and for ancillary equipment (including heating facilities) should be inert to oils and fats, and should be suitable for use in contact with food.

(b) Stainless steel is the most preferred metal for the construction of tanks. It is particularly recommended for the storage and transport of fully refined oils and fats. Tanks of mild steel should preferably be coated with an inert material on the inside, for example phenolic epoxy resins. Their suitability for contact with foodstuffs, particularly oils and fats, should be obtained from coating manufacturers. Zinc silicate coatings for mild steel tanks are also suitable, but it should be noted that deterioration of the oil can take place if used with crude oils and fats with high acid values.

Prior to application of the coating, the metal surface must be sand-blasted to bright metal (ISO 8501-1: 1988) or equivalent. It should be noted that there are temperature limitations on many coatings which must be carefully observed particularly during the cleaning of the tank (for example, the temperature limitation may preclude the use of live steam in the cleaning operation).

(c) Copper and its alloys such as brass, bronze or gun metal should not be used in the construction of the storage installation or in a ship or road/rail tanker used for transport that has contact with the oils or fats such as piping, pipe connections, seals, valves, heating coils, strainers, pumps, temperature gauges or in sampling apparatus. Temperature gauges containing mercury should not be used.

Glass equipment and glass sample bottles should be avoided in situations where breakage might lead to contamination.

3.1.5 Heating facilities - tanks

All tanks for solid, semi-solid and high viscosity oils and fats should be installed with heating facilities (see also Section 3.1.7) so that the product is liquid and homogenous when transferred or unloaded. Heating coils should be of stainless steel construction. Heating coils constructed from alloys containing copper are not suitable.

Use of means of heating should be by design, construction and procedures, such as to avoid contamination and damage to the oil. Suitable means of heating are as follows:

(a) Bare hot water pipes

Heating by hot water (about 80°C) circulated through coils is the best procedure because it is least likely to cause local overheating. Coils should be self draining or mechanical or vacuum pump draining.

(b) Bare steam pipes

Heating by steam with pressure up to 150 kPa (1.5 bars) gauge (temperature of 127°C) can also be used. Coils should be self draining or mechanical or vacuum pump draining.

The heating coils should rest on supporting legs about 7.5 cm (3") above the base of the tank. Some operators prefer supporting legs 15 cm (6") or 30 cm (12") high (to facilitate cleaning and to improve heat transfer to the oil). Vertical hairpin coils or side heating coils installed on the tank walls should also be provided. As a guide a coil area of about 0.1 m²/tonne of tank capacity is required if the fat has to be melted, but 0.05m²/tonne suffices for heating-up purposes. The total coil length is normally divided into two or more separate coils, of a length suitable to avoid excessive accumulation of steam condensate.

(c) External heat exchangers

These provide uniform heating and may be used as an alternative to other heating systems in cases where the product is required to remain liquid and pumpable in the tank.

External heat exchangers should satisfy the requirements of all means of heating with respect to design and construction such as to avoid contamination and damage to the oil. There should be procedures in place to detect incidents of leakage should they occur.

Although hot water and steam are the preferred means of heating, other substances may be used on the basis of safety and risk evaluation and inspection procedures. Upon request by the competent authorities, evidence may be required to demonstrate that the heating media employed have been properly evaluated and safely used.

3.1.6 Heating facilities - road and rail tankers and ISO tank containers

For solid or semi-solid fats and high viscosity oils, road and rail tankers and ISO tank containers where fitted with internal heating coils, these should be of stainless steel which can be coupled to a source of hot water or low pressure steam (pressure up to 150 kPa (1.5 bars) gauge).

3.1.7 Storage tank and road/rail tanker insulation

Storage tanks, tankers and containers should preferably be insulated, particularly in temperate and cold climates. Insulation is usually fitted externally and must be designed to avoid the absorption of oil or water. Insulation material should be impervious to oils and fats.

3.1.8 Control of temperature

All ships and storage tanks with heating facilities should be equipped with temperature sensors and control devices to prevent overheating of oil in the tank and associated lines. Thermometers must be carefully sited and away from heating coils. It is useful to have automatic recording type thermometers to provide records of temperature control. The recorder should be installed in a conspicuous location such as the supervisor's office or the ship's operations room.

3.1.9 Protection from aeration

Pipelines and their connections should be designed so that admixture with air is avoided. Filling can be done from the bottom or over the top of the tank with the pipe leading to near the bottom to avoid cascading to prevent aeration. It is preferable to clear the pipe line leading to the tank by a "pigging"

system and/or by the use of inert gas. However, if air is used a suitable means must be provided to prevent it being blown into the oil in the tanks.

3.1.10 Inert gas protection

Ships and storage tanks used for high quality products or for long storage periods should preferably have facilities for sparging and blanketing with inert gas of appropriate purity.

3.2 Pipelines

3.2.1 Materials

Mild steel is acceptable for all crude and semi-refined oils and fats though stainless steel is preferable. Stainless steel should be used for fully refined products. (see also 3.1.4 c)

3.2.2 Flexible hoses

All flexible hoses used to connect pipelines during loading and unloading must be of inert material, be suitably reinforced and be of such a length to make cleaning easy. Exposed ends should be capped when not in use. Couplings should be of stainless steel or other inert materials.

3.2.3 Insulation and heating

In temperate and cold climates, pipelines used for oils and fats which may solidify at ambient temperatures should preferably be lagged and also provided with heating, for example by steam tracing lines or electrical heating tape. When clearing pipelines in such climates, steam may be used.

4 Section IV - OPERATIONS

4.1 Loading and unloading

4.1.1 Heating up

Before transfer, solid, semi-solid and high viscosity oils and fats in storage tanks, shore tanks, ship tanks and road and rail tank cars should be heated slowly so that they are liquid and completely homogeneous. Heating should start at a time calculated to give the required pumping temperature without ever exceeding the maximum rate of 5°C over a 24 hour period. If steam is used, the steam pressure should not exceed 150 kPa (1.5 bars) gauge to prevent localised over-heating. The coils should be covered completely before heating of the tank begins.

4.1.2 Temperatures during storage and transport

To prevent excessive crystallisation and solidification during short-term storage and shipping, oil in bulk tanks should be maintained within the temperature ranges given in Table 1.

The temperatures apply to both crude and refined oils in each grade.

The temperatures are chosen to minimise damage to the oil or fat. Some crystallisation will occur, but not so much as to require excessively long heating before delivery. Thus palm oil stored at 32°C - 40°C will require about three days heating at 5°C over a 24 hour period to bring it to transfer temperature. Long term storage of all soft oils should be at ambient temperature and heating should be completely turned off. If the oil then becomes solid, extreme care should be taken during the initial heating to ensure that localised overheating does not occur.

4.1.3 Temperature during loading and discharge

The various oil products should be heated up to the temperature shown in Table 1 before transfer.

The lower temperatures apply to low melting point grades, while the higher temperatures are necessary for higher melting point grades. The temperatures apply to both crude and refined oils in each type.

Temperature at loading or unloading should refer to the average of top, middle and bottom temperature readings. Readings should be taken not less than 30 cm away from the heating coils.

Under cold weather conditions discharge temperatures should be at the maximum of those shown in Table 1, to prevent blocking of unheated pipelines.

4.1.4 Loading and unloading sequence

Different oils and grades should be kept separate and pumping "new" oil into "old" oil in particular should be avoided for oxidative quality reasons. It is preferable to transfer different oils and grades through segregated lines.

Where a number of products are transferred through a common pipeline system, the system must be cleared completely between different products or grades. The order of loading and discharge should be carefully chosen to minimise adulteration.

The following principles should be observed:

- * Fully refined oils before partly refined.
- * Partly refined oils before crude oils.
- * Edible oils before technical grades.
- * Fatty acids or acid oils should be pumped last.
- * Special care should be taken to prevent adulteration between lauric oils and non-lauric oils.

4.1.5 The first pumpings of each grade should be collected where possible in separate tanks for quality checks.

4.2 Cleaning

In addition to what has been said above, where tanks have been used for non-edible materials, the greatest care must be taken by cleaning and inspection that all residues have been totally removed.

If steam or water are used for cleaning, the system must be drained and completely dried before oil is handled. A pipeline "pigging" system should be provided at each storage installation. If detergents or alkali are used, all surfaces with which they have been in contact should be rinsed thoroughly with fresh water to ensure that no residues remain.

4.3 Maintenance

Regular maintenance checks should be made, preferably as part of a properly planned maintenance programme. They should include functioning of steam pressure regulation valves; all steam supply valves and steam traps for leakage; thermometers, thermostats, recording thermometers, weighing equipment and any gauge meters for function and accuracy; all pumps regulated by thermostat for leakage; integrity of tank coatings; hoses (internal and external) and condition of tanks and ancillary equipment.

4.4 Others

4.4.1 There must be clear marking or identification systems for the pipelines and storage tanks.

4.4.2 The condition such as cleanliness of storage tanks, road tankers, ship's tanks and pipelines should be inspected by a suitably qualified superintendent for every loading or unloading of oil and written reports provided.

4.4.3 The receiver may wish to keep tank sediments separate from the bulk.

4.4.4 Records of the ship's heating log should be provided.

4.4.5 Ship loading samples, properly marked and sealed, should be delivered as required by the contract.

4.4.6 The three previous cargoes carried in a ship's tank should be declared to the charterer and the records made available to all parties involved. The provision should be part of all shipping contracts. In addition, authorities may wish to see evidence of previous cargo details.

TABLE 1**TEMPERATURES DURING STORAGE, TRANSPORT, LOADING AND DISCHARGE**

Oil or fat	Storage and bulk shipments		Loading and discharge	
	Min °C	Max °C	Min °C	Max °C
Castor oil	20	25	30	35
Coconut oil	27	32	40	45
Cottonseed oil	Ambient	Ambient	20	25 (3)
Fish oil	20	25	25	30
Grapeseed oil	Ambient	Ambient	15	20 (3)
Groundnut oil	Ambient	Ambient	20	25 (3)
Hydrogenated oils	Various	-	Various	- (1)
Illipe butter	38	41	50	55
Lard	40	45	50	55
Linseed oil	Ambient	Ambient	15	20 (3)
Maize (corn) oil	Ambient	Ambient	15	20 (3)
Olive oil	Ambient	Ambient	15	20 (3)
Palm oil	32	40	50	55
Palm olein	25	30	32	35
Palm stearin	40	45	60	70 (2)
Palm kernel oil	27	32	40	45
Palm kernel olein	25	30	30	35
Palm kernel stearin	32	38	40	45
Rapeseed/low erucic acid rapeseed oil	Ambient	Ambient	15	20 (3)
Safflower oil	Ambient	Ambient	15	20 (3)
Sesame oil	Ambient	Ambient	15	20 (3)
Sheanut butter	38	41	50	55
Soyabean oil	Ambient	Ambient	20	25 (3)
Sunflower oil	Ambient	Ambient	15	20 (3)
Tallow	45	55	55	65

Notes

(1) Hydrogenated oils can vary considerably in their slip melting points, which should always be declared. It is recommended that during the voyage, the temperature should be maintained at around the declared melting point and that this should be increased prior to discharge to give a temperature of between 10° C and 15°C above that point to effect a clean discharge.

(2) Different grades of palm stearin may have wide variations in their slip melting points and the temperature quoted may need to be adjusted to suit specific circumstances.

(3) It is recognised that in some cases the ambient temperatures may exceed the recommended maximum figures shown in the Table.

CODEX LIST OF ACCEPTABLE PREVIOUS CARGOES

[To be developed.]

Appendix 3**CODEX LIST OF BANNED IMMEDIATE PREVIOUS CARGOES**

[To be developed.]

Appendix 4**BIBLIOGRAPHY**

European Commission Scientific Committee for Food (SCF) Opinion on the Potential Risk to Human Health Arising from the Transport in Ships' Tanks of Oils and Fats from Substances Proposed as Acceptable Previous Cargoes. Opinion expressed on 20 September 1996: Minutes of 103rd SCF Plenary Meeting (European Commission), Annex VII (Doc.III/5693/96).

Federation of Oils, Seeds and Fats Associations (FOSFA International). International List of Acceptable Previous Cargoes (giving synonyms and alternative chemical names).

FOSFA International List of Banned Immediate Previous Cargoes.

FOSFA International Qualifications for All Ships Engaged in the Ocean Carriage and Transhipment of Oils and Fats for Edible and Oleo-Chemical Use.

FOSFA International Operational Procedures for All Ships Engaged in Ocean Carriage of Oils and Fats for Edible and Oleo-Chemical Use.

FOSFA International Code of Practice for Superintendents.

International Organisation for Standardisation (ISO) Sampling Standard ISO 5555 (1991).

National Institute of Oilseed Products (NIOP) Acceptable Prior Cargo - List No 1.

NIOP Acceptable Prior Cargo - List No 2.

NIOP Unacceptable Prior Cargo List.

NIOP Trading Rules.

PORAM (Palm Oil Refiners Association of Malaysia) Processed Palm Oil Storage, Transportation, Sampling and Survey Guide.

ISO 1496-3 (1991) on Tank Containers (ISO 20 ft IMO2).

Tank Cleaning Guide (1996) - published by Chemical Laboratory 'Dr A Verwey' Rotterdam.

**PROPOSED DRAFT STANDARD FOR FAT SPREADS AND BLENDED SPREADS
(At Step 3 of the Procedure)**

1. SCOPE

This Standard applies to fat products, containing not less than 10% and not more than 90% fat, intended primarily for use as spreads. However, this Standard does not apply to fat spreads derived exclusively from milk and/or milk products to which only other substances necessary for their manufacture have been added. It only includes margarine and products used for similar purposes and excludes products with a fat content of less than 2/3 of the dry matter (excluding salt). Butter and dairy spreads are not covered by this Standard.

2. DESCRIPTION

2.1 Fat Spreads and Blended Spreads

The products covered by this Standard are foods in the form of an emulsion, principally of water and edible fats and oils, [and that is firm and spreadable at 20°C].

2.2 Edible Fats and Oils

“Edible fats and oils” means foodstuffs composed mainly of triglycerides of fatty acids. They are of vegetable or animal (including milk) or marine origin. They may contain small amounts of other lipids such as partial glycerides or phosphatides, of unsaponifiable constituents and of free fatty acids naturally present in fat or oil. Fats of animal origin must, if originating from slaughtered animals, be obtained from animals in good health at the time of slaughter and fit for human consumption as determined by a competent authority recognised in national legislation. This includes fats and oils that have been subjected to processes of physical or chemical modification including fractionation, inter-esterification or hydrogenation.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Composition

3.1.1 Fat Spreads

3.1.1.1 For these products, any milk fat content must be no more than 3% of the total fat content.

3.1.1.2 The fat content shall be as follows:

(a)	Margarine	80% - 90%
(b)	Three-quarter fat margarine	[59% - 61%.]
(c)	Half fat margarine, minarine or halverine	[39% - 41%.]
(d)	Fat spreads	[any other product which meets the specifications in 3.1.1.1, subject to a minimum fat content of 10%.]

3.1.2 Blended Spreads

3.1.2.1 The milk fat content of a blended spread must be more than 3% of the total fat content.

3.1.2.2 The fat content shall be as follows:

(a)	Blend	80 [-95%]
(b)	Three-quarter fat blend	59-61%
(c)	Half fat blend	39-41%
(d)	Blended spread	any other product which meets the specifications in 3.1.2.1., subject to a minimum fat content of 10%.

3.2. Permitted Ingredients

The following substances and products derived from them are permitted in the products covered by this standard, in addition to the basic constituents.

- Starter cultures of harmless lactic acid and/or flavour producing bacteria
- Vitamins (Maximum and minimum levels for vitamins A, D and other vitamins, where appropriate, should be laid down by national legislation in accordance with the needs of each individual country including, where appropriate, the prohibition of the use of particular vitamins.)
- Sodium chloride
- Egg yolk
- Edible proteins
- Sugars (i.e. any carbohydrate sweetening material)
- Gelatine
- Natural starches
- Milk and its constituents
- Mono-, di and oligosaccharides (including inulin) and malto-dextrins

4 FOOD ADDITIVES

4.1 COLOURS

		<u>Maximum Level</u>
100	(i) Curcumin or (ii) Turmeric	GMP
160a	(i) Beta-carotene	GMP
160b	Annatto extracts	10 mg/kg (calculated as total bixin or norbixin)
160e	Beta-apo-carotenal	25 mg/kg
160f	Beta-apo-8'-carotenoic acid, methyl or ethyl ester	25 mg/kg

4.2 FLAVOURS

Natural flavours and their identical synthetic equivalents and other synthetic flavours, except those which are known to present a toxic hazard.

4.3 EMULSIFIERS

		<u>Maximum Level</u>
322	Lecithins	GMP
	Polyoxyethylene (20) sorbitan:)
432	monolaurate)
433	mono-oleate)
434	monopalmitate	) 10 g/kg singly or in combination
435	monostearate)
436	tristearate)
471	Mono- and di-glycerides of fatty acids	GMP
472(a)	Acetic and fatty acid esters of glycerol)
472(b)	Lactic and fatty acid esters of glycerol)
472(c)	Citric and fatty acid esters of glycerol)
472(d)	Tartaric acid esters of mono- and di-glycerides of fatty acids	) GMP
472(e)	Diacetyltartaric and fatty acid esters of glycerol)
472(f)	Mixed tartaric, acetic and fatty acid esters of glycerol)
473	Sucrose esters of fatty acids	10 g/kg
474	Sucroglycerides	10 g/kg
475	Polyglycerol esters of fatty acids	5 g/kg
476	Polyglycerol polyricinoleate	4 g/kg (for products containing < 41% fat only)
477	Propylene glycol esters of fatty acids	20 g/kg
479a	Thermally oxidised soya bean oil	4 g/kg
479b	Thermally oxidised soya bean oil interacted with mono and diglycerides of fatty acids	10 g/kg
481	Sodium lactylates)
	(i) sodium stearoyl lactylate)
	(ii) sodium oleyl lactylate	) 10 g/kg singly or in combination
482	Calcium lactylates)
	(i) calcium stearoyl lactylate)
	(ii) calcium oleyl lactylate)
491	Sorbitan monostearate)
492	Sorbitan tristearate)
493	Sorbitan monolaurate	) 10 g/kg
494	Sorbitan monooleate)
495	Sorbitan monopalmitate)

4.4 PRESERVATIVES

200	Sorbic acid	) 2,000 mg/kg singly or in combination
202	Potassium sorbate	) (as sorbic acid) for fat contents < 60%,
203	Calcium sorbate	) 1,000mg/kg singly or in combination (as sorbic acid) for fat contents > 60%
210	Benzoic acid)
211	Sodium benzoate	) 1,000 mg/kg singly or in combination
212	Potassium benzoate	) (as benzoic acid)
213	Calcium benzoate)

4.5 THICKENING AND STABILISING AGENTS

339	Na orthophosphate)	
400	Alginic acid)	
401	Sodium alginate)	
402	Potassium alginate)	
403	Ammonium alginate)	
404	Calcium alginate)	
405	Propylene glycol alginate)	
406	Agar)	
407	Carrageenan and its Na, K, NH ₄ salts (including furcellaran))	
410	Carob bean gum)	
412	Guar Gum)	
413	Tragacanth gum)	
414	Gum arabic)	
415	Xanthan gum)	
418	Gellan gum)	
422	Glycerol)	
440	Pectins)	
450a	Disodium diphosphate)	
461	Methyl cellulose)	
463	Hydroxypropyl cellulose)	
464	Hydroxypropyl methyl cellulose)	
465	Methyl ethyl cellulose)	
466	Sodium carboxymethyl cellulose)	
500	Sodium carbonates)	
500(iii)	Sodium sesquicarbonate)	
1400	Dextrine roasted starch	)	GMP
1401	Acid treated starch)	
1402	Alkaline treated starch)	
1403	Bleached starch)	
1404	Oxidised starch)	
1405	Enzyme treated starch)	
1410	Monostarch phosphate)	
1411	Distarch phosphate (Na Trimetaphosphate))	
1412	Distarch phosphate)	
1413	Phosphated distarch phosphate)	
1414	Acetylated distarch phosphate)	
1420	Starch acetate ester. Acetic anhydride)	
1421	Starch acetate ester. Vinyl acetate)	
1422	Acetylated distarch adipate)	
1440	Hydroxypropyl starch)	
1442	Hydroxypropyl distarch phosphate)	
	Pregelatinised starches)	
	Starch acetate	)	GMP
	Cellulose and microcrystalline cellulose)	

4.6 ACIDITY REGULATORS

260	Acetic acid)	
261	Potassium acetate)	
262	Sodium acetate)	
263	Calcium acetate)	
270	Lactic acid (L-, D- and DL-))	
325	Sodium lactate)	
326	Potassium lactate)	
327	Calcium lactate	)	GMP
330	Citric acid)	
331	Sodium citrates)	
	(i) Sodium dihydrogen citrate)	
	(ii) Disodium monohydrogen citrate)	
	(iii) Trisodium citrate)	
332	Potassium citrate)	
333	Calcium citrate)	
334	Tartaric acid)	
335	Sodium tartrates)	
	(i) Monosodium tartrate)	
	(ii) Disodium tartrate)	
336	Potassium tartrate)	
337	Sodium tartrate)	
339	Sodium phosphates)	
340	Potassium phosphates	)	GMP
341	Calcium orthophosphate)	
500(i)	Sodium carbonate)	
500(ii)	Sodium hydrogen carbonate)	
524	Sodium hydroxide)	
526	Calcium hydroxide)	
	Phosphoric acid)	
575	Glucono delta lactone)	

4.7 ANTIOXIDANTS

300	Ascorbic acid (L-))	
301	Sodium ascorbate)	
302	Calcium ascorbate	)	GMP
304	Ascorbyl palmitate)	
305	Ascorbyl stearate)	
306	Mixed tocopherols concentrate)	
307	Alpha-tocopherol	)	GMP
308	Synthetic gamma-tocopherol)	
309	Synthetic delta-tocopherol)	
310	Propyl gallate)	
319	Tertiary butyl hydroquinone (TBHQ)	)	200 mg/kg singly or in combination
320	Butylated hydroxyanisole (BHA))	
321	Butylated hydroxytoluene (BHT)	)	75 mg/kg
389	Dilauryl thiodipropionate)	
	Any combination of gallates, BHA and BHT providing limits for individual compounds are not exceeded.)	

4.8 ANTIOXIDANT SYNERGISTS

384	Isopropyl citrates)	100 mg/kg singly or in combination
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68	Monoglyceride citrate)	
	Calcium disodium EDTA		75 mg/kg

4.9 ANTI-FOAMING AGENTS

900a	Polydimethylsiloxane		10 mg/kg
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4.10 FLAVOUR ENHANCERS

508	Potassium chloride)	
509	Calcium chloride)	GMP
510	Ammonium chloride)	
511	Magnesium chloride)	
620	Glutamic acid)	
621	Monosodium glutamate)	
622	Monopotassium glutamate	)	10 g/kg singly or in combination
623	Calcium diglutamate	)	(as glutamic acid)
624	Monoammonium glutamate)	
625	Magnesium diglutamate)	
626	Guanylic acid)	
627	Sodium guanylate)	
628	Potassium guanylate)	
629	Calcium guanylate)	
630	Inosinic acid	)	500 mg/kg singly or in combination
631	Disodium inosinate	)	(expressed as guanylic acid)
632	Dipotassium inosinate)	
633	Calcium inosinate)	
634	Calcium 5'-ribonucleotides)	
635	Disodium 5'-ribonucleotides)	
959	Neohesperidine dihydrochalcone		5 mg/kg

4.11 MISCELLANEOUS

			<u>Maximum Level</u>
290	Carbon dioxide		GMP
338	Orthophosphoric acid		GMP
405	Propylene glycol		GMP
420	Sorbitol and sorbitol syrup		GMP
421	Mannitol		GMP
551	Silicon dioxide amorphous		500 mg/kg
920	L-cysteine and its hydrochlorides- sodium and potassium salts		
938	Argon		GMP
941	Nitrogen		GMP
942	Nitrous oxide		GMP
953	Isomalt		GMP
965	Maltitol		GMP
966	Lactitol		GMP
967	Xylitol		GMP

5. CONTAMINANTS

5.1 Heavy metals

The products covered by the provisions of this Standard shall comply with maximum limits being established by the Codex Alimentarius Commission but in the meantime the following limits will apply:

Maximum permissible concentration

Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

5.2 Pesticide residues

The products covered by the provisions of this Standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

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 Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to the products.

6.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

6.3 When tested by appropriate methods of sampling and examination, the product:

- shall be free from micro-organisms in amounts that may represent a hazard to human health;
- shall be free from parasites which may represent a hazard to human health; and
- shall not contain any substance originating from micro-organisms in amounts which may represent a hazard to human health.

7. LABELLING

The product shall be labelled in accordance with the Codex General Standard for the Labelling of Pre-packaged Foods (Ref. CODEX STAN 1-1985, Rev. 1-1991; Codex Alimentarius, Volume 1A). The product designations should be translated into other languages in a meaningful way and not strictly word by word.

7.1 Name of the Food

The name of the food to be declared on the label shall be as specified in Sections 3.1.1 and 3.1.2. Where Codex Guidelines for the use of nutrition claims permit claims concerning the fat content of products covered by this Standard, these may be used, where appropriate, as alternatives to the terms, "three quarter" and "half".

7.2 Labelling of Non-Retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, 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.

7.3 Declaration of Fat Content

7.3.1 The product shall be labelled to indicate typical fat content in a manner found acceptable in the country of sale.

7.3.2 The milk fat content of blended spreads (3.1.2) shall be indicated in a manner that is clear and not misleading to the consumer.

8 METHODS OF ANALYSIS AND SAMPLING

8.1 Determination of lead

According to IUPAC 2.632, AOAC 994.02 or ISO 12193: 1994.

8.2 Determination of arsenic

According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

8.3 Determination of water, solids-non-fat and fat content

According to ISO 3727: 1977, AOAC 920.116 or IDF 80: 1977.

8.4 Determination of milk fat content

According to IUPAC 2.310, AOAC 990.27 or AOCS Ca 5c-87 (97).

8.5 Determination of salt content

According to IDF 12B : 1988, ISO CD 1738 or AOAC 960.29.

8.6 Determination of vitamin A content

According to AOAC 985.30.

8.7 Determination of vitamin D content

According to AOAC 981.17.

8.8 Determination of vitamin E content

According to IUPAC 2.432 or ISO 9936: 1997.