CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda Item 3 **MAS45/CRD03**

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON METHODS OF ANALYSIS AND SAMPLING

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REPORT OF PHYSICAL WORKING GROUP ON ENDORSEMENT OF METHODS OF ANALYSIS AND SAMPLING PLANS FOR PROVISIONS IN CODEX STANDARDS

(Prepared by the Chair and co-chairs of the Physical Working Group on endorsement of methods of analysis and sampling plans for provisions in Codex standards)

1. The PWG was held on 8 March 2026 at Danubius Helia Hotel, Budapest in Hungary. The PWG was chaired by Dr Patrick J. Gray (USA) and co-chaired by Dr Fodor Peter Oszkar (Hungary) and Dr Hidetaka Kobayashi (Japan). The PWG considered the methods of analysis and sampling and agreed to recommend CCMAS to endorse, return to appropriate EWG or ask the relevant committee for further clarification.

Codex Committee on Spices and Culinary Herbs (CCSCH 8, CX/MAS 25/45/3 Appendix V)

2. Since the VWG could not finalize all the methods of analysis proposed by CCSCH8, the PWG considered the rest of the methods (Part B2 and B3). The results are shown in Annex I.

Vanilla

3. The PWG agreed to include the footnote “100 g test portion size” on ISO 927 for extraneous matter and live insect for clarity. It was also agreed to remove “analysis” from the principles for vanillin content on wet basis for consistency.

Large cardamom

4. The principle for volatile oil was amended as “calculation, distillation and distillation” for consistency. It was noted that regarding appearing distillation twice, it was necessary because the method consisted of volatile oils, which was analyzed by distillation, and dry matter or moisture, which was also analyzed by distillation.

5. Regarding principles for total ash, it was clarified that the temperature of 550 ºC should be included and the principles should be gravimetry. It was noted that the description might need changing according to the result of the harmonization working group. In this regard, the Codex Secretariat pointed out that there was inconsistency in CXS 234.

6. There was a question about “for whole” listed in the method entry for whole insect live/dead whether it meant whole cardamom or whole insect. It was clarified that “for whole” was related to commodity (whole large cardamom), not with the provision (whole insect). The PWG agreed to move ‘(for whole)’ to the commodity column and recommends CCMAS inform CCSCH why the changes were made.

7. A similar discussion was held for powdered/pieces of large cardamom, and the PWG agreed to move ‘(for powdered/pieces)’ to the commodity column.

8. AOAC 993.27 was proposed as a type III method for mammalian and/or other excreta for large cardamom. AOAC 993.27 is an alkaline phosphatase method validated in black pepper. The PWG recommended that a question be sent back to CCSCH as to whether this method might also be appropriate as a Type III method for mammalian and/or other excreta in large cardamom.

Dried or dehydrated coriander

9. The PWG agreed to delete “content” in provision of moisture content for consistency.

10. Regarding the footnote in several provisions, one delegation clarified that ISO 2825 was necessary for

preparation of whole coriander and proposed and the information should be included.

11. One delegation proposed to divide these lines into two parts (one for whole and another for not whole coriander) and include ISO 2825 in the lines for whole coriander. Another delegation clarified that ISO 2825 was already mentioned in ISO 939 for preparation of whole coriander and therefore there was no need to reiterate in CXS 234. With the clarification, the PWG agreed to remove the ISO 2825 footnote.

12. For the provision of mammalian or/and other excreta, the PWG noted that a Type III method, AOAC 993.27, exists and considered whether endorsing the V-8 method was consistent. Another delegation said that ISO 927 should be endorsed as Type IV because it might cover the provision, which was more harmonized because ISO 927 had already been listed in CXS 234.

13. There was a question on why ISO 927 was endorsed as Type I in some cases and as Type IV in other cases. The Chair of PWG clarified that it was because of validation data for some commodities that qualifies it as a Type I, but not for others, which qualifies it as a Type IV in those cases.

14. The PWG agreed not to recommend that CCMAS endorse AOAC 993.27 and ISO 927 for the provision but rather to recommend asking CCSCH for their opinion about these two methods and whether they might be fit for purpose for mammalian and/or other excreta in dried or dehydrated coriander.

15. The PWG recommends:

- Endorsement of methods in Appendix I
- Returning information to CCSCH about the movement of certain details, e.g. (for whole) from the provision column to the commodity column.
- Returning questions to CCSCH about whether AOAC 993.27 would also be an appropriate method for mammalian and/or other excreta in large cardamom and/or dried and dehydrated coriander.

Codex Committee on Fats and Oils (CCFO29, CX/MAS 26/45/3-Add.1)

16. The PWG considered the methods of analysis proposed by CCFO29. The results are shown in Appendix II.

Gamma oryzanol in crude rice bran oil (Appendix II)

17. One delegation said that the method was historical and that it should be retained at Type IV. One observer informed the PWG that ISO is working on a validation study of a new HPLC method for the provision.

18. The PWG recommends that the method with the amendment to the principle as “spectrophotometry – UV” should be endorsed as Type IV.

Microbial omega-3 oils (Appendix II Part 2)

Part 1

19. Two Karl Fischer methods were proposed for moisture as Type II, and it was noted that it is against Codex procedures to have 2 Type II methods, and one method should be endorsed as Type III. One observer mentioned that pyridine is used in AOCS Ca 2e-84, and that may be restricted in some countries due to toxicity, whereas pyridine is not used in ISO 8534, so that ISO method should be preferable. The PWG recommends endorsing ISO 8534 as Type II and AOCS Ca 2e-84 as Type III, with amendment on principle of “titrimetry (Karl Fischer)” for both methods.

20. The PWG noted that with Karl Fischer method, “water” rather than “moisture” is a more accurate description of the measurand and as the provision name for these methods, and recommended the CCMAS to request CCFO to consider the change of provision name.

21. The PWG agreed that European Pharmacopoeia should be spelled out in the method.

Part 2

22. The Codex Secretariat noted that the standard using these methods is currently at Step 5, and that these methods would be included in CXS 234 after adoption of the standard.

23. Two different methods, ISO 662 and AOCS Ca 2c-25, were proposed as Type I for moisture and volatile matter. It was noted that both methods were validated for oils. Both methods were air drying in oven but the temperature was different: 103 ºC for ISO 662 and 130 ºC for AOCS Ca 2c-25. Since they are different methods, only one Type I method could be endorsed.

24. There were several proposals, such as:

- Validation data should be reviewed, and the method with better performance should be classified as Type I

- The provision could be split into two parts including the temperature, i.e. 'moisture and volatile matter at 103 ºC' and 'moisture and volatile matter at 130 ºC'. In this case, numeric limits should be included in the standard that correspond to the different provisions.
- Since omega-3 oils are vulnerable to oxidation in high temperature, the lower temperature method, ISO 662, should be more conservative.

25. Regarding the discussion on how to deal with the other method when one method was endorsed as Type I, some delegations supported endorsing as Type IV, but others were not in favor of it to avoid confusion about co-existing Type I and IV methods for one provision.

26. After some discussion, the PWG agreed that CCMAS should send back the following 2 options to CCFO:

- Split the provision into two separate provisions that include the temperature. In this case, two numeric values in accordance with each method should be elaborated.
  - Moisture and volatile matter at 103℃
  - Moisture and volatile matter at 130℃
- Choose one method for this provision, which CCMAS would then consider for endorsement

27. It was also agreed that CCMAS should inform CCFO that since the commodity is vulnerable to oxidation, the method with lower temperature, ISO 662, would be a more conservative approach.

28. The Codex Secretariat noted that since the work is currently at Step 5, sufficient time is available for CCFO to establish two numeric limits for two provisions in case CCFO decides to split the provision into two parts.

29. The PWG recommends:

- Endorsement of methods in Appendix II including the method for gamma oryzanol in crude rice bran oil as Type IV and including the method as an appendix in CXS 234
- Returning questions to CCFO about their preference in the options for moisture and volatile matter in paragraph 26 above with information that the lower temperature method (ISO 662) may be the more conservative approach, and informing CCFO that the methods for moisture actually measure water, and whether a more accurate provision name of "water" might be more clear than the current provision name "moisture."

Codex Alimentarius Commission (CAC48, CX/MAS 26/45/3 Appendix I)

30. The PWG considered the matters referred by CAC48. The results are shown in Appendix III.

Part A

31. One delegation supported retention of the information and proposed the way forward in CRD 9. The PWG agreed to recommend inclusion of the text in CRD 9 into Appendix VIII of CXS 234.

Part B

32. The Brazilian delegate agreed to check the accuracy of the numeric performance criteria.

33. One delegation proposed that the numbers in the table should be integers since too many significant digits were not significant statistically. The PWG agreed to amend accordingly.

34. It was clarified that NMKL 178 was identical to AOAC 971.27 and it was validated for canned salmon, so the PWG considered these methods were eligible to be listed as examples.

35. One delegation mentioned that AOAC 937.09 required the use of chromate, which was restricted chemical in some countries due to toxicity. The PWG agreed to remove the method from the examples.

36. The PWG agreed to include AOAC 976.18 (titrimetry (potentiometry)) for boiled dried salted anchovies because the method was specific to fish and fishery products and validated for similar commodities. It was noted that AOAC 976.18 referred to AOAC 937.87 Part B for sample size and to AOAC 971.27 for analysis, so it was not an independent method from AOAC 971.27.

37. The PWG recommends:

- Incorporation of the text in CRD09 into Appendix VIII of CXS 234
- Revision of the numeric performance criteria rounded to the nearest integer
- Revisions of the example methods as shown in appendix III Part B in CXS 234

Review of methods of analysis – Cocoa products and chocolate workable package (CX/MAS 26/45/7)

38. Dr Marija Vujić Steefanović (Serbia) as the chair of the EWG explained the item. The results of the PWG work are shown in Appendix IV. One delegation noted that they did not have sufficient time to consult amongst its members due to the late arrival of the document and requested earlier distribution.

Chocolate and chocolate products

39. Regarding the cocoa butter method, one observer informed the PWG that if the value should be on dry basis, a method for moisture was necessary. The PWG decided to retain the first line and to add a new line for cocoa butter on dry basis with method of ICA No. 1 and ICA No. 26 / AOAC 977.10 and AOAC 963.15 / ICA No. 14. The text in provision in parentheses "(determined as fat)" were deleted.

40. One delegation said that for cocoa butter provision, since the method measures total fat content, the method was not applicable to commodities containing milkfat or other added fat. The PWG agreed to include footnote on the method for both provisions as "applicable only for products which do not contain milkfat or other added fats".

41. For the milkfat method, one delegation proposed to remove ICA No. 5 because it was no longer up to date. Two methods were proposed for replacement: one was AOAC 990.27 (GC-FID and calculation) that determined butyric acid in fats containing butterfat, and another was ISO 11053 / AOCS Ce 11.07 (GC-FID and calculation) that determined the amount of butterfat or milkfat directly. Since these methods were not identical, either could be Type I. The PWG decided that for the time being, ICA No. 5 was retained as Type IV and other methods were listed in square brackets. CCMAS was recommended to discuss whether to retain ICA No. 5 as a Type IV method, or replace it with one of the other proposed methods. The PWG did not intend to recommend endorsement of a Type IV and 2 Type I methods for the same provision and commodity.

42. For moisture, one observer proposed to retype AOAC 931.04, identical to ICA No. 1, as Type I because the method was a part of other Type I method (cocoa butter on dry matter basis), and if it was Type IV it was inconsistent. For the provision of moisture (determined as water), it was noted that the result from Karl Fischer method should be "water", and moisture should not be used in the situation.

43. It was noted that CXS 87 lacks a corresponding numeric limit for moisture, so the PWG decided to recommend removal of methods for moisture and water from CXS 234. However, cocoa butter provision on a dry basis still required a moisture correction, so the methods are retained for that provision as part of the calculation.

Cocoa (cacao) mass or cocoa/chocolate liquor, and cocoa cake

44. For the provision of cocoa butter, the PWG agreed to delete texts in parentheses in provision "(determined as fat)", ICA No. 26 / AOAC 977.10 in method and "calculation from moisture (determined as water)" in principles to follow the earlier decision. The same amendment applied to cocoa powders (cocas) and dry mixtures of cocoa and sugars.

Cocoa butter

45. For unsaponifiable matter, ISO 18609 was removed from the Type I method because ISO 3596 and AOCS Ca 6b-53, which use diethylether as solvent, were identical but ISO 18609, which use hexane, was not. The principle was amended from titrimetry to gravimetry for correction.

46. Since the use of diethylether was restricted in some countries, the PWG agreed to include ISO 18609 as a separate Type IV method with a footnote of "Results obtained from ISO 18609 are systematically lower. In case of limitations due to climate or regulations that prohibit the use of diethyl ether, ISO 18609 can be used instead of the Type I method." This footnote mirrors a similar existing footnote in CXS 234 for unsaponifiable matter in named vegetable oils.

Cocoa powders (cocoas) and dry mixtures of cocoa and sugars

47. The PWG agreed to change the provision name of determination of full-fat cocoa powder, fat-reduced cocoa powder and highly fat-reduced cocoa powder to insert "content of" before full-fat cocoa powder for clarity. Instead of AOAC 980.14, EU CLEN Method ILIADe 112 and AOAC 963.15 / ICA No. 14 was proposed.

48. There was a question about the method that the EU method extracted fat with water. It was clarified that HPLC-UV analysis is conducted after water extraction, and that a good result was obtained from the method despite low extractability of alkaloids to be analyzed.

49. The PWG recommends:

- Endorsement of methods and changes shown in Appendix IV

Retyping of ISO 1871 for determining protein in quinoa (CX/MAS 26/45/5)

50. Dr Laura Flores (Uruguay) introduced the item.

51. Some delegations supported retyping ISO 1871 for quinoa to Type I because the repeatability and reproducibility in the collaborative study in LAC region showed adequate results even though each laboratory varied their experimental conditions (reagents, temperature, etc.), which showed the robustness of the method. They also noted that quinoa was an important product in the region and did not belong to cereal taxonomy.

52. Other delegations did not support retyping because the methods used in the collaborative study used different catalysts and temperatures. It was clarified that ISO 1871 was a guideline rather than a method of analysis and did not meet the criteria for a Type I method. It was also noted that ISO agreed to expand the scope of ISO 20483 for cereals to quinoa if a member country could sponsor the work.

53. The PWG noted that if ISO 1871 was retyped as Type I, it could be problematic to replace when the validation study on the ISO 20483 was concluded.

54. One delegation on behalf of IAM informed the PWG that IAM discussed the matter and concluded that retyping ISO 1871 was not favorable. However, he reminded the PWG that AOAC had produced a document regarding using proficiency testing data as a basis for validation status, which could be helpful to CCMAS. It would be useful if AOAC could have access to the raw data from this study.

55. The PWG noted that ISO 1871 was previously endorsed as a Type I method for protein in tehena (Regional Standard in Near East) and that following this discussion, the PWG recommends that CCMAS consider retyping ISO 1871 as Type IV for tehena and to inform CCNE accordingly.

56. The Chair of CCMAS informed the PWG that Hungary would organize proficiency study to help CCMAS work. AOAC also informed the PWG that they would help ISO and Hungary with the design calculation of statistics of the future work.

57. The PWG recommends:

- Retaining ISO 1871 as Type IV for protein in quinoa
- Retyping ISO 1871 as Type IV for protein in tehena and informing CCNE

Review of Methods of analysis – honey & sugar workable package (CX/MAS 26/45/8)

58. Dr Laura Flores (Uruguay) as the chair of the EWG explained the item. The results of PWG discussion are shown in Appendix V.

59. It was clarified that a vertical bar (|) between methods meant that they were the same document jointly published by different organizations. Since vertical bars used in this document did not meet the criteria, the PWG agreed to replace vertical bars with forward slashes (/) throughout this document, which means these methods followed identical procedures but were published in distinctly different formats.

60. There was some discussion on the provisions of sulphur dioxide. Some delegations expressed that the provision should be sulfites rather than sulphur dioxide because in GSFA, many sulfites were registered but the ML was set for total sulfite expressed sulphur dioxide. Other delegations supported to retain as sulfur dioxide because it was the compound analyzed. Since sulfites or sulphur dioxide in sugar were derived from food additive, the PWG decided to recommend “sulfites (expressed as sulfur dioxide)” to harmonize with GSFA. Although the PWG reviewed the methods for sulfites, it later decided to ask the EWG to establish numeric performance criteria (NPC) for these provisions which could be reviewed at next CCMAS.

Honey

61. For acidity, it was clarified that MAFF Validated Method V19 (Type I) was still available and that the provision was “free acidity” instead of “acidity”. Since the method was published under the reference of “J. Assoc. Public Analysts (1992) 28 (4) 171-175”, the reference was redundant, and the PWG agreed to recommend deleting the publication reference for all MAFF methods throughout the document.

62. Since AOAC 962.19 (supposed to be Type I) was not identical to the MAFF method, the method was separated. It was noted that the validation data for AOAC 962.19 was not available at the moment.

63. One delegation mentioned that IHC 4 (titrimetry by potentiometry, supposed to be Type II or III) for acidity was validated and proposed to include in the table. In addition to these three methods, TS 13360 (supposed to be Type I or IV) was listed, and it was confirmed that these methods were all different from each other.

64. Due to the complicated situation, the PWG decided to retain MAFF V19 method as Type I and delete the

other three methods from the table. It further agreed to request EWG to consider whether either method should be replaced with one of the others, and the result would be reconsidered by PWG next year.

65. For diastase activity, the PWG agreed to remove IHC method since there was no reason to retain it as Type IV.

66. The principle for AOAC 980.23 for hydroxymethylfurfural was replaced with spectrophotometry – UV. The PWG also agreed that this method should be Type III whereas the other method IHC 5, using HPLC-UV, should be Type II because this method had superior specificity.

67. With regard to the methods for sugar added, the principle of AOAC 998.12 was corrected to IRMS, and it was clarified that the method could not analyze sugar profile. Then the first line for sugars added (for sugar profile) was removed to avoid duplication with that in four lines below.

68. Considering the purpose, the PWG agreed to include "authenticity" in the provision. It was noted that AOAC 998.12 included decision tree and criterion to judge whether or not the honey was adulterated, but CEN EN 17958 was a method to measure the ratio of carbons from C3-C4 plants only, without a decision tree. The PWG noted that for authenticity ranges, decision criterion outside the method was necessary, and such information was available in *Apidologie 2008, 39(5), 574-587*.

69. One delegation expressed concern about AOAC 998.12 because with the method, genuine mānuka honey may be considered to be adulterated. It was noted that uncertainty in method of AOAC 998.12 was important and that studies were underway to resolve the issue. However, in the meantime the delegation requested to include a footnote saying that the method was not applicable to mānuka honey. The PWG agreed to include this footnote.

70. Uruguay, as the chair of EWG for the review of method of analysis for sugar and honey, was of the view that a group of experts was necessary to work on the topic of authenticity since the expertise of authenticity was different from that of analytical method. One delegation stated that CCMAS should inform the CAC of the fact that the EWG needed additional work with experts. The delegation was of the view that the issue was related to the standard itself rather than the methods and that the standard should be revised to solve the issue. The EWG chair also said that distribution of circular letter may help to solve the problem.

71. Regarding the provision of "detection of corn and cane sugar products", the PWG agreed it should be replaced with C4 sugar because it was technically correct.

72. The PWG recommends:

- Endorse AOAC 998.12 (IRMS) for sugars added: detection of C4 sugars as Type II and a footnote of "excluding mānuka honey" is put on the commodity name (honey)
- Endorse EN 17958 (HPLC-IRMS) for sugars added (authenticity) as Type III with a footnote of "for authenticity ranges, refer to: Apidologie 2008, 39(5), 574-587"
- Endorse AOAC 977.20 (HPLC-RI) for sugar profile (glucose, fructose, sucrose) as Type IV

Sugars (dextrose anhydrous and dextrose monohydrate)

73. The PWG agreed to add "(Lane & Eynon)" after titrimetry in the principle of D-Glucose. The PWG also agreed to include the drying temperature of 100 ºC in principle of solids, total.

Sugars (glucose syrup and dried glucose syrup)

74. The PWG agreed to include the drying temperature of 70 ºC in the principle of solids, total.

Sugars (dextrose anhydrous and dextrose monohydrate, dried glucose syrup, glucose syrup, powdered dextrose, lactose)

75. The PWG agreed to include the incineration temperature of 525 ºC in the principle of sulphated ash.

Sugars (soft brown sugar)

76. The PWG agreed to include the incineration temperature of 650 ºC in the principle of sulphated ash.

Sugars (fructose, powdered sugar, white sugar)

77. The PWG agreed to add "plantation or mill white sugar" to the commodity name since the method was applicable to these commodities.

Sugars (fructose)

78. The PWG agreed to insert "(vacuum drying at 70 ºC)" after gravimetry in principle for loss on drying.

Sugars (lactose)

79. The PWG agreed to delete “for 16 h” in principle for loss on drying since the USP method did not specify the duration.

Sugars (plantation or mill white sugar, powdered sugar, soft white sugar and soft brown sugar, white sugar)

80. Drying temperature of 105 ºC was added to the principle for loss on drying.

Sugars (plantation or mill white sugars)

81. It was clarified that for sulfite, AOAC 962.16 could be used when the ML was greater than 50 mg/kg. The PWG agreed to include the information and to endorse another method, AOAC 990.28 (titrimetry modified Monier – Williams), as Type III, which had a wider analytical range (e.g. ML of less than 50 mg/kg).

Sugars (plantation or mill white sugar, powdered sugar and powdered dextrose, raw cane sugar, soft white sugar and soft brown sugar, white sugar)

82. Regarding sulfite, it was clarified that ICUMSA GS 2-35 (Enzymatic Spectrophotometry-UV) was validated and NMKL 135 (Enzymatic Spectrophotometry-UV) was not validated for the commodity. At the moment, EN 1988-2, currently endorsed for sulphur dioxide in various sugars, was not accessible.

83. The PWG considered that NPC could be applicable to the provision and agreed that the EWG should consider the NPC for consideration at the next session of CCMAS.

Sugars (plantation and mill white sugar)

84. In view of consistency, the provision was amended to visible photometry, noting that the colour should be measured at 420 nm. The provision was amended to “Colour (ICUMSA units)” in line with the original standard.

85. The PWG noticed that there were several provisions that were included in original standards but not in CXS 234. The PWG considered to set NPC, but due to time constraint, the PWG could not consider it and agreed to send it to EWG for consideration.

Other issues related to this commodity group

86. One delegation informed the PWG that raw sugar had a significant international trade recently, but sugar standards did not have composition and quality factors. She proposed that CCMAS should request advice from CAC on quality factor of raw sugar.

87. The PWG recommends:

- Endorsement of methods marked with “E” in appendix V part 1
- Further work and review for methods marked with “EWG” in appendix V part 1
- Development of NPC in the reestablished EWG for methods marked with “NPC-EWG” in appendix V part 1 with NPC in appendix V part 2

Review of methods of analysis – fish and fishery products, fats and oils, cereals, pulses and legumes and derived products (CX/MAS 26/45/4)

88. Dr Thea Rawn (Canada) presented the working document and the PWG discussed the methods. The results are shown in Appendix VI.

Fats and oils

89. The term “Edible” was added at the beginning of the commodity name “fats and oils not covered by individual standards”.

90. For peroxide value in edible fats and oils not covered by individual standard, the principle was amended as “Titrimetry (colourimetry)”.

91. Regarding soap content in fats and oils not covered by individual standards, one delegation supported deletion of the method (BS 684 Section 2.65) and asked whether the alternative method should be endorsed. The Chair clarified that the alternative method, ISO 10539 / AOCS Cc 17-95 has already been included in CXS 234 for soap content in fats and oils (all).

92. Regarding milk fat content in fat spreads and blended spreads, one delegation was of the view that it should be clearly stated that the method did not measure milkfat directly but measure butyric acid and estimate milkfat content to avoid misunderstanding. The PWG agreed to recommend a footnote of “milkfat content is calculated from butyric acid content using conversion factor”.

93. "Potentiometric" in principle for salt content in fat spreads and blended spread was amended to "(Potentiometry)" for consistency. The PWG also agreed to delete "detection" after "HPLC-UV" for consistency.

Cereals, Pulses, Legumes and Derived Products

94. One delegation raised a question about the method including Annex name what CCMAS should do when the listed standard was revised and the name of annex was changed. Although revision of standard should be notified to CCMAS by SDOs, the PWG agreed to delete the reference to Annex to avoid the situation. It was noted that in case of ISO 7301, analytical methods were included only in Annex A so that no consequential problem was expected.

95. For the method of minimum test weight in wheat and durum wheat and oats, ISO 7971 contained multiple parts including: Part 1 – reference method that used a 20 L volume; and part 3 – routine method with a smaller 1 L volume. The PWG agreed to recommend the method specify the method as "ISO 7971-1" since only the first part was relevant in the context of Codex and to remove "(in 20 L)" from principle because the value was already included in ISO 7971-1.

96. Regarding the method for insect bored kernels in wheat and in durum wheat, the PWG agreed that as CCCPL is now an active committee, CCMAS should request CCCPL to establish whether the provision should be changed to "Grain attacked by pests" and if yes, CCMAS should ask CCCPL whether CXS 199 specifications would still be applicable.

Amendment to standard

97. There was a question whether method of analysis in the tables should refer directly to CXS 234 instead of referring to Section 8 which contained the reference to CXS 234. The Codex Secretariat clarified that since it was agreed before, the CCMAS should continue with this convention.

98. With regard to soap content in fats and oils (all), the principle was amended to "titrimetry (alkalimetry)".

Provisions for which the EWG was unable to recommend methods, principles and typing

99. The PWG agreed that an analytical method for kernel defects: damaged kernels for peanuts should be FSA Method MPM V.10 (v89) (visual examination, gravimetry).

100. The PWG recommends:

- Endorsement of the methods in appendix VI
- Referring a question back to CCCPL on whether "insect bored kernels" might be better named "grains attacked by pests."

Leftover items from VWG

Revision to "Sum of Components" information document (paragraph 13)

101. The chair recalled that in VWG, inconsistency between para. 13 and Table 1 in "Sum of components" information document led to confusion with the numeric performance criteria for aflatoxins.

102. The following amendment was proposed:

> "If the components included in the ML definition are not present in constant ratios and where the inclusion of weighting factors of the individual components results in LOD/LOQ values or minimum applicable range that cannot be validated, ML/n should be used to determine the criterion for LOD (e.g. 1/5*ML/n) and for LOQ (e.g. 2/5*ML/n) or for the minimum applicable range ~~**(e.g. ML/n±2SR)**~~ **(e.g. [ML/n-2S_R, ML+2S_R] for ML < 0.1 mg/kg, and [ML/n-3S_R, ML+3S_R] for ML ≥ 0.1 mg/kg)**, with n being the number of components included in the ML definition."

103. The PWG agreed to recommend amending para. 13 of the information document as presented.

Numeric performance criteria for total aflatoxins and ochratoxin A in certain spices

104. Minimal applicable ranges were amended following the amended para. 13 of the information document. For consistency, precision ≤ 44% (vs <) was suggested in agreement with table 3 of the procedural manual. After some editorial correction, the PWG agreed to the amended table (Appendix VII).

105. One delegation reminded the PWG of the earlier discussion at VWG on the potential confusion of including NPC for the total aflatoxin row since methods measure the individual isomers separately. The VWG was split on this point and asked for a fuller conversation at the plenary. In the meantime, the information was retained within brackets as a temporary reminder.

106. The chair noted that other NPC for mycotoxin analysis that had already been endorsed should be reviewed. However, since they were once endorsed, CCMAS could not directly correct these NPCs, but should first explain CCCF why the revision was necessary.

Request for endorsement of COI/T.20/Doc. No 38 as Type I method for peroxide value in olive oils and olive pomace oils

107. The representative of IOC presented the item (CRD 26). She informed the PWG that COI/T.20/Doc. No. 38 was revised to be identical to ISO 3960 / AOCS Cd 8b-90 / NMKL 158 and that it would be published on 16 March.

108. There was a question whether CCMAS could endorse a method that had not been published at the moment. The Codex Secretariat clarified that there was a precedent, and it would be no problem because it should be published when CAC considered the matter.

109. Another question was raised about whether the new method was identical to ISO 3960 / AOCS Cd 8b-90 / NMKL 158. It was agreed that SDOs should check if these methods were identical and report back to the plenary so that CCMAS could decide whether or not to endorse it.

110. The PWG recommends:

- Amending paragraph 13 of the 'Sum of Components' information document with the text in paragraph 102 above.
- Endorsing the tables for aflatoxins in certain spices and certain foods as shown in appendix VII.
- Deciding whether to retain the information in the top row of the AFT numeric performance criteria, or whether to remove it since the methods measure the aflatoxin isomers individually and not as a sum.
- Inform CCCF of the mistake in the 'Sum of Components' information document and of the CCMAS efforts to amend the error, along with the revised minimal applicable ranges (as included in appendix VII), and to inform CCCF that the same mistake was made with previously endorsed NPC (REP23/MAS-Appendix II, table 3) and that those tables should also be corrected.

Review of Methods of Analysis – Fruit Juices workable package (CX/MAS 26/45/6)

111. Dr David Hammond (IFU) presented the item. The work was underway, but as the expert task group was not a part of Codex, and the extensive length of the recommendations, along with the late arrival of the report, the PWG was unable to act on all the task force's recommendations.

112. The task force did identify four methods that were no longer supported or not validated. The PWG agreed to remove these four methods from CXS 234 (Appendix VIII).

113. The PWG also discussed the continued work of review, and agreed to recommend that CCMAS re-establish the EWG for fruit juice review chaired by a member country and with the support of IFU, to evaluate the recommendations made in CX/MAS 26/45/6 for decision at the next meeting.

114. The PWG recommends:

- Revocation of the methods shown in Appendix VIII
- Reestablishment of the EWG for fruit juice method review to evaluate the recommendations from the IFU-led task force of experts

APPENDIX I

Methods of analysis submitted by CCSCH8

Commodity	Provision	Method	Principles	Type	PWG
Vanilla	Moisture ~~**content**~~	ISO 5565-2	Distillation	I	E
Vanilla	Extraneous matter	ISO 927*****	Visual examination followed by Gravimetry	I	E
Vanilla	Live Insect	ISO 927*****	Visual examination (by count)	I	E
Vanilla	Vanillin content on wet basis	ISO 5565-2	HPLC-UV ~~**analysis**~~	II	E
Large cardamom	Moisture	ISO 939	Distillation	I	E
Large cardamom	Volatile oil (on dry basis)	ISO 939 and ISO 6571	Calculation (from moisture and volatile Oils), Distillation and Distillation	I	E
Large cardamom	Total ash (On dry basis)	ISO 939 and ISO 928	Calculation (from moisture and Ash ~~**(at 550ºC)**~~), Distillation and Gravimetry **at 550ºC**	I	E
Large cardamom	Acid insoluble ash (on dry basis)	ISO 939 and ISO 930	Calculation from moisture and Ash (at 550ºC), Distillation and Gravimetry	I	E
Large cardamom	Extraneous matter	ISO 927	Visual examination followed by Gravimetry	I	E
Large cardamom	Foreign matter	ISO 927	Visual examination followed by Gravimetry	I	E
Large cardamom **(for whole)**	Whole insect live/dead	ISO 927 ~~**(for whole)**~~	Visual examination (counting)	I	E
Large cardamom **(for powdered/pieces)**	Whole insect live/dead	AOAC 975.49 ~~**(for powdered/pieces)**~~	Floatation	I	E

Commodity	Provision	Method	Principles	Type	PWG
Large cardamom	Mammalian and/or other excreta	Method V-8 Spices, Condiments, Flavors and Crude Drugs (Macro analytical Procedure Manual) MPM: V-8. Spices https://www.fda.gov/food/laboratory-methods-food/mpm-v-8-spices-condiments-flavors-and-crude-drugs#v32	Visual examination followed by Gravimetry	IV	E
Large cardamom	**Mammalian and/or other excreta**	**AOAC 993.27**	**Colorimetry**	**III**	**CCSCH**
Large cardamom	Visible mould / Mouldy Material	ISO 927	Visual examination followed by Gravimetry	I	E
Large cardamom	Insect defiled	ISO 927	Visual examination followed by Gravimetry	I	E
Large cardamom	Empty, malformed and split capsules	ISO 10622~~:1997~~	Visual examination (counting)	I	E
Large cardamom	Immature and shrivelled capsules/seed	ISO 927	Visual examination followed by Gravimetry	I	E
Large cardamom	Light seeds	ISO 927	Visual examination followed by Gravimetry	I	E
Dried or dehydrated coriander	Moisture ~~content~~**	ISO 939	Distillation	I	E
Dried or dehydrated coriander	Total Ash on dry basis**	ISO 939 and ISO 928	Calculation from moisture and ash (at 550°C) Distillation and Gravimetry	I	E
Dried or dehydrated coriander	Acid Insoluble Ash (dry basis) **	ISO 939 and ISO 930	Calculation from moisture and ash (at 550 °C) Distillation and Gravimetry	I	E
Dried or dehydrated coriander	Volatile oils (dry basis)	ISO 939 and ISO 6571	Calculation from moisture and volatile oils Distillation and distillation	I	E
Dried or dehydrated coriander	Extraneous Matter	ISO 927	Visual Examination followed by Gravimetry	I	E

Commodity	Provision	Method	Principles	Type	PWG
Dried or dehydrated coriander	Foreign Matter	ISO 927	Visual Examination followed by Gravimetry	I	E
Dried or dehydrated coriander	Split fruits, Damaged or discoloured fruits	ISO 927	Visual Examination followed by Gravimetry	I	E
Dried or dehydrated coriander	Mouldy material / Mould visible	ISO 927	Visual Examination followed by Gravimetry	I	E
Dried or dehydrated coriander	Insect Defiled	ISO 927	Visual Examination followed by Gravimetry	I	E
Dried or dehydrated coriander	Live insect	ISO 927	Visual Examination (counting)	I	E
Dried or dehydrated coriander	Dead insect	ISO 927	Visual Examination (counting)	I	E
Dried or dehydrated coriander	Mammalian or/and Other excreta	Method V-8 Spices, Condiments, Flavors and Crude Drugs (Macroanalytical Procedure Manual) MPM: V-8. Spices https://www.fda.gov/food/laboratory-methods-food/mpm-v-8-spices-condiments-flavors-and-crude-drugs#v32	Visual Examination followed by Gravimetry	IV	E
Dried or dehydrated coriander	**Mammalian and/or other excreta**	**AOAC 993.27**	**Colorimetry**	**IV**	**CCSCH**
Dried or dehydrated coriander	**Mammalian and/or other excreta**	**ISO 927**	**Visual Examination (gravimetry)**	**IV**	**CCSCH**

*** 100 g sample size**

~~**** For the whole coriander preparation sample, followed by ISO 2825**~~

E: Recommended for endorsement

CCSCH: return the item for consideration by CCSCH

APPENDIX II

Method of analysis submitted by CCFO

Method of analysis for the determination of gamma oryzanol in crude rice bran oil (for endorsement)

Fats and oils				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Crude rice bran oil	Gamma oryzanol	See Appendix **	~~**Absorption ultraviolet**~~ **Spectrophotometry-UV**	~~**III**~~ **IV**

Appendix ** of CXS 234-1999

DETERMINATION OF GAMMA ORYZANOL CONTENT IN CRUDE RICE BRAN OIL

Definition

This method is used to determine gamma oryzanol content (percentage) in oils from spectrophotometer absorption measurements at the wavelength of maximum absorption near 315 nm.

Scope

Applicable to crude rice bran oil.

Apparatus

- Spectrophotometer – for measuring extinction in the ultraviolet between 310 nm and 320 nm
- Rectangular quartz cuvettes – having an optical light path of 1 cm
- Volumetric flask – 25 ml
- Filter paper – Whatman No. 2, or equivalent

Reagents

- n-Heptane – spectrophotometrically pure.

Procedure

(i) Before using, the spectrophotometer should be properly adjusted to a zero-reading filling both the sample cuvette and the reference cuvette with n-Heptane.

(ii) Filter the oil sample through filter paper at ambient temperature.

(iii) Weigh accurately approximately 0.02 g of the sample so prepared into a 25 ml volumetric flask, make up to the mark with n-Heptane.

(iv) Fill a cuvette with the solution obtained and measure the extinction at the wavelength of maximum absorption near 315 m, using the same solvent as a reference.

(v) The extinction values recorded must lie within the range 0.3–0.6. If not, the measurements must be repeated using more concentrated or more diluted solutions as appropriate.

Calculation

Calculate gamma oryzanol content as follows:

$$\text{Gamma oryzanol content, \%} = 25 \times (1 / W) \times A \times (1 / E)$$

Where: W = mass of sample, g

A = extinction (absorbance) of the solution

E = specific extinction $E^{1\%}_{1\ cm} = 359$

Part 1: Methods of analysis for provisions in the proposed draft standard for microbial omega-3 oils (except for moisture and volatile matter) (for endorsement)

Fats and oils					
Commodity	**Provision**	**Method**	**Principle**	**Type**	**PWG**
Microbial omega-3 oils	Fatty acid composition	ISO 12966-2 and ISO 12966-4	Preparation of FAME* and determination by GC-FID	III	E
Microbial omega-3 oils	Fatty acid composition	AOCS Ce 2-66 and AOCS Ce 1i-07	Preparation of FAME* and determination by GC-FID	II	E
Microbial omega-3 oils	EPA and DHA	~~Ph. Eur.~~ **European Pharmacopoeia** 2.4.29 / USP 401	GC-FID	II	E
Microbial omega-3 oils	EPA and DHA	AOCS Ce 1i-07	GC-FID	III	E
Microbial omega-3 oils	Peroxide Value	AOCS Cd 8b-90 / ISO 3960 / NMKL 158 / European Pharmacopoeia 2.5.5	Titrimetry (colorimetric)	I	E
Microbial omega-3 oils	Anisidine Value	European Pharmacopoeia 2.5.36 / AOCS Cd 18-90 / ISO 6885	Spectrophotometry**-UV**	I	E
Microbial omega-3 oils	Acid Value	AOCS Ca 5a-40 / AOCS Cd 3d-63 / ISO 660 / NMKL 38 / USP 401, Method 1	Titrimetry	I	E
Microbial omega-3 oils	Unsaponifiable matter	ISO 3596 / AOCS Ca 6b-53	Gravimetry and Titrimetry	I	E
Microbial omega-3 oils	Moisture**	ISO 8534	Titrimetry **(Karl Fischer)**	II	E, CCFO
Microbial omega-3 oils	Moisture**	AOCS Ca 2e-84	Titrimetry **(Karl Fischer)**	III	E, CCFO

*FAME = Fatty Acid Methyl Esters

** For 2 methods of moisture, inform CCFO that the Karl Fischer titration is specific for H_2O, and the provision name “water” would be more accurate than “moisture”

Part 2: Methods of analysis for the determination of moisture and volatile matter in the proposed draft standard for microbial omega-3 oils (for review of method typing and endorsement)

Fats and oils				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Microbial omega-3 oils	Moisture and volatile matter **at 103 ºC**	ISO 662	Gravimetry	CCFO
Microbial omega-3 oils	Moisture and volatile matter **at 130 ºC**	AOCS Ca 2c-25	Gravimetry	CCFO

E: endorsed

CCFO: return the item for consideration by CCFO

APPENDIX III

CODEX ALIMENTARIUS COMMISSION (CAC48)

Part A: Method of analysis and preparation of fish samples for salted fish and dried salted fish of the Gadidae family of fishes

(for consideration whether to retain in CXS 234-1999 or revoke)

A1. Method of analysis for salt saturation in salted fish and dried salted fish of the Gadidae family of fishes

Fish and fishery products				
Commodity	***Provision***	***Method***	***Principle***	***Type***
Salted fish and dried salted fish of the Gadidae family of fishes	Salt saturation	**See Appendix VIII** ~~**See equation in footnote**[xii]~~	Calculation	I

~~[xii] The % salt saturation is calculated as follows:~~

~~1. % salt in water = (% salt content / (% salt content + % moisture)) x 100%~~

~~2. % salt saturation = (% salt in water / 26.4 %*) x 100%~~

~~* The solubility of sodium chloride in water is 36 g per 100 g water, and the constant is calculated as follows: 36 g sodium chloride / (100 g water + 36 g sodium chloride) x 100% = 26.4%~~

(Amendment to Appendix VIII of CXS 234)

PREPARATION OF FISH SAMPLES AND DETERMINATION OF SALT SATURATION, BASED ON SALT AND MOISTURE CONTENT, AND WATER CONTENT IN FISH AND FISHERY PRODUCTS IN SALTED FISH AND DRIED FISH OF THE *Gadidae* family of fishes

PART 1: PREPARATION OF FISH SAMPLES

~~**Salted fish and dried salted fish of the *Gadidae* family of fishes**~~

1. Before preparing of a sub-sample adhering salt crystals should be removed by brushing from the surface of the sample without using water.
2. The preparation of fish samples for the determination of salt content, and water content moisture in order to calculate the % salt saturation of the fish should be carried out according to AOAC 937.07. The analysis should be on the edible portion of the fish.
3. Determination should be performed at least in duplicate.

PART 2: DETERMINATION OF SALT CONTENT

For determination of salt content, see Table 5. "Method performance criteria for sodium chloride and for salt determined as chloride expressed as sodium chloride".

PART ~~2~~3: DETERMINATION OF MOISTURE AND WATER CONTENT

~~Salted fish and dried salted fish of the *Gadidae* family of fishes~~

i. Determination of % salt saturation as required by the standard, should be in accordance to AOAC 950.46.B (Airdrying (a))

ii. Determination of water content in the whole fish, when needed in the commercial trade of klippfish and wet salted fish, the method of sampling the fish should be carried out according to the "Determination of Water Content in Whole Fish by Cross Section Method" defined in the Annex to this Appendix.

~~**Salted Atlantic herring and salted sprat**~~

~~Determination of water content is performed according to AOAC 950.46B (air drying).~~

PART 4: DETERMINATION OF SALT SATURATION

Salt saturation is determined by calculation, using the mean values of the replicates, according to the following formula:

1. % salt in water = (% salt content / (% salt content + % moisture)) x 100%

2. % salt saturation = (% salt in water / 26.4 %*) x 100%

***The solubility of sodium chloride in water is 36 g per 100 g water, and the constant is calculated as follows: 36 g sodium chloride / (100 g water + 36 g sodium chloride) x 100% = 26.4%**

Part B: Example methods provided for certain numeric performance criteria for salt and sodium

Method performance criteria for sodium chloride and for salt determined as chloride expressed as sodium chloride

Commodity	Provision	ML (%)	Min. appl. Range (%)	LOD (%)	LOQ (%)	Precision (RSD_R) (%) no more than	Recovery (%)	Examples of applicable methods that meet the criteria	Principle
Boiled dried salted anchovies	Sodium chloride and salt determined as chloride expressed as sodium chloride	15 (NaCl) 9.1 (Cl^-)	~~13.8–16.2~~ **13–17** ~~8.3–9.9~~ **8.–10**	1.5 0.91	3.0 1.8	~~5.3~~ **5** ~~5.7~~ **6**	98–102 98–102	NMKL 178 AOAC 971.27 ~~AOAC 937.09~~ **AOAC 976.18**	Titrimetry (potentiometric) Titrimetry (potentiometric) ~~Titrimetry~~ **Titrimetry (potentiometric)**
Fish sauce	Sodium chloride and salt determined as chloride expressed as sodium chloride	From 20 From 12 (Cl^-) 11–13	18–22 1.2	2.0 2.4	4.0 5.5	5.1 98–102	98–102 AOAC 971.27 AOAC 976.18 ~~AOAC 937.19~~	NMKL 178 Titrimetry (potentiometric) Titrimetry (potentiometric) ~~Titrimetry~~
Salted Atlantic herring and salted sprat	Sodium chloride and salt determined as chloride expressed as sodium chloride	From 1 to 20 (NaCl) From 0.6 to 12 (Cl^-)	0.9–22 0.5–13	0.1 0.06	0.2 0.12	8.0 8.6	97–103	NMKL 178 AOAC 971.27	Titrimetry (potentiometric) Titrimetry (potentiometric)

Commodity	Provision	ML (%)	Min. appl. Range (%)	LOD (%)	LOQ (%)	Precision (RSD_R) (%) no more than	Recovery (%)	Examples of applicable methods that meet the criteria	Principle
								AOAC 976.18 ~~**AOAC 937.09**~~	Titrimetry (potentiometric) ~~**Titrimetry**~~
Salted fish and dried salted fish of Gadidae family of fishes	Sodium chloride and salt determined as chloride expressed as sodium chloride	From 12 (NaCl) From 7.3 (Cl^-)	11–13 6.8–8.1	1.2 0.8	2.4 1.5	5.5 5.9	98–102	NMKL 178 AOAC 971.27 AOAC 976.18 ~~**AOAC 937.09**~~	Titrimetry (potentiometric) Titrimetry (potentiometric) Titrimetry (potentiometric) ~~**Titrimetry**~~
Sturgeon caviar	Sodium chloride and salt determined as chloride expressed as sodium chloride	From 3 to 5 (NaCl) From 1.8 to 3.0 (Cl^-)	2.7–5.5 1.7–3.4	0.3 0.2	0.6 0.4	6.8 7.3	97–103	NMKL 178 AOAC 971.27 AOAC 976.18 ~~**AOAC 937.09**~~	Titrimetry (potentiometric) Titrimetry (potentiometric) Titrimetry (potentiometric) ~~**Titrimetry**~~

APPENDIX IV

Review of methods of analysis in CXS 234: Cocoa products and chocolate workable package

Cocoa products and chocolate					
Commodity	**Standard**	**Provision**	**Method**	**Principle**	**Type**
Chocolate and chocolate products	CXS 87	Cocoa butter ***** ~~**(determined as fat)***~~	~~**ICA No. 26 / AOAC 977.10 and**~~ AOAC 963.15 **/** ICA No. 14	~~**Calculation from moisture (determined as water) and**~~ Gravimetry (Soxhlet extraction)	I
Chocolate and chocolate products	**CXS 87**	**Cocoa butter on dry basis***	**ICA No. 26 / AOAC 977.10 and AOAC 963.15 / ~~IOCCC~~ ICA No. 14**	**Calculation from water and Gravimetry (Soxhlet extraction)**	**I**
Chocolate and chocolate products	CXS 87	Milk fat	ICA No. 5	Titrimetry/Distillation	IV
Chocolate and chocolate products	**CXS 87**	**Milk fat**	**[AOCS Ce 11a-07 / ISO 11053]**	**GC-FID and calculation**	**I**
Chocolate and chocolate products	**CXS 87**	**Milk fat**	**[AOAC 990.27]**	**GC-FID and calculation**	**I**
~~**Chocolate and chocolate products**~~	~~**CXS 87**~~	~~**Milkfat**~~	~~**AOAC 945.34; 925.41B; 920.80**~~	~~**Titrimetry/Distillation**~~	~~**I**~~
~~**Chocolate and chocolate products**~~	~~**CXS 87**~~	~~**Moisture**~~	~~**IOCCC 26 or AOAC 977.10 (Karl Fischer method);**~~ ~~**IOCCC 1**~~	~~**Gravimetry**~~	~~**I**~~
Chocolate and chocolate products	CXS 87	Non-cocoa butter vegetable fat	AOCS Ce 10~~/~~-02	GC-MS	IV
Chocolate and chocolate products	CXS 87	Cocoa butter equivalents in cocoa butter and plain chocolate	ISO 23275-1 and ISO 23275-2 / AOCS Ce 11-05	GC-FID	I
Chocolate and chocolate products	CXS 87	Cocoa Butter Equivalents in Milk Chocolate	ISO 11053 / AOCS Ce 11a-07	GC-FID	I
Chocolate and chocolate products	CXS 87	Determination of centre and coating of filled chocolate	See Appendix **		

Cocoa products and chocolate					
Commodity	**Standard**	**Provision**	**Method**	**Principle**	**Type**
Cocoa (cacao) mass or cocoa/ chocolate liquor, and cocoa cake	CXS 141	Cocoa butter **~~(determined as fat)~~**	**~~ICA No. 26 / AOAC 977.10 and~~** AOAC 963.15 / ICA No. 14	**~~Calculation from moisture (determined as water) and~~** Gravimetry (Soxhlet extraction)	I
Cocoa butter	CXS 86	Free fatty acids	ISO 660 **/** AOCS Cd 3d-63	Titrimetry	I
Cocoa butter	CXS 86	Unsaponifiable matter	ISO 3596 **~~/ ISO 18609~~ /** AOCS Ca 6b-53	Gravimetry after extraction with diethyl ether	I
Cocoa butter	**CXS 86**	**Unsaponifiable matter****	**ISO 18609**	**Gravimetry after extraction with hexane**	**IV**
Cocoa powders (cocoa) and dry cocoa- sugar mixtures	CXS 105	Moisture (determined as water)	ICA No. 26 / AOAC 977.10 (Karl Fischer method)	Titrimetry - Karl Fischer	II
Cocoa powders (cocoas) and dry mixtures of cocoa and sugars	CXS 105	Determination of **content of** full-fat cocoa powder, fat-reduced cocoa powder and highly fat-reduced cocoa powder	**~~AOAC 980.14~~** **EU CLEN Method ILIADe 112 and AOAC 963.15 / ICA No. 14**	**HPLC-UV, Gravimetry (Soxhlet extraction) and** calculation	**I**
Cocoa powders (cocoas) and dry mixtures of cocoa and sugars	CXS 105	Cocoa butter **~~(determined as fat)~~**	**~~ICA No. 26 / AOAC 977.10 and~~** AOAC 963.15 / ICA No. 14	**~~Calculation from moisture (determined as water) and~~** Gravimetry (Soxhlet extraction)	I

APPENDIX **: DETERMINATION OF CENTRE AND COATING OF FILLED CHOCOLATE IN CHOCOLATE AND CHOCOLATE PRODUCTS

All methods approved for the chocolate type used for the coating and those approved for the type of centre concerned.

* Applicable for products which do not contain milkfat or other added fats

** Results obtained from ISO 18609 are systematically lower. In case of limitations due to climate or regulations that prohibit the use of diethyl ether, ISO 18609 can be used instead of the Type I method.

APPENDIX V

Part 1

Review of methods of analysis in CXS 234: Honey and sugar workable package

Note: Only the columns "Commodity", "Provisions", "Method", "Principle", and "Type" will be included in CXS 234-1999 following the endorsement of methods. Recommended amendments and inclusions to CXS 234-1999 are indicated in **bold, underline and highlight**. Recommended revocations are indicated in ~~strikethrough~~ and red.

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Honey	**Free** Acidity	MAFF Validated Method V19 ~~I J. Assoc. Public Analysts (1992) 28 (4) 171-175 | AOAC 962.19~~	Titrimetry	I	CXS 12-1981	CCS	E
~~Honey~~	~~Acidity~~	~~TS 13360~~	~~Titrimetry~~	~~I or IV~~		~~CCS~~	
Honey	Hydroxymethylfurfural	AOAC 980.23	Spectrophotometry**-UV**	~~II~~ **III**	CXS 12-1981	CCS	NPC-EWG
Honey	Hydroxymethylfurfural	IHC 5	HPLC-UV	~~III~~ **II**	CXS 12-1981	CCS	NPC-EWG
~~Honey~~	~~Diastase activity~~	~~IHC Method for determination of diastase activity with Phadebas, 2009 except that the incubation time should be increased from 15 to 30 min~~					
Honey	Diastase activity	AOAC 958.09 / IHC 6.1	Enzymatic **Spectrophotometry-VISIBLE**	I	CXS 12-1981	CCS	E
Honey	Moisture	AOAC 969.38B **/** MAFF Validated Method V21	Refractometry	I	CXS 12-1981	CCS	E
~~Honey~~	~~Sample preparation~~	~~AOAC 920.180~~	-	-	CXS 12-1981	CCS	E
Honey	Solids, water-insoluble	MAFF Validated Method V22 / IHC 8	Gravimetry Drying at 135 °C	I	CXS 12-1981	CCS	E

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
~~Honey~~	~~Sugars added (for sugar profile)~~	~~AOAC 998.18~~	~~Carbon isotope ratio mass spectrometry~~	I	CXS 12-1981	CCS	E
Honey	**Sugars added (authenticity)**	EN 17958** **** For authenticity ranges, refer to: Apidologie 2008, 39 (5), 574-587**	**HP**LC-IRMS	III	CXS 12-1981	CCS	E
Honey	~~**Sugar added (for sugar profile)**~~ **Sugars profile (glucose, fructose, sucrose)**	AOAC 977.20	**HP**LC-RI	IV	CXS 12-1981	CCS	E
~~Honey~~	~~**Sugars added: detection of corn and cane C_4 sugar products**~~	~~AOAC 978.17~~	~~Carbon isotope ratio mass spectrometry~~	I	CXS 12-1981	CCS	
Honey* *** excluding manuka honey**	**Sugars added: detection of ~~corn and cane~~ C_4 sugar ~~products~~**	AOAC 998.12	IRMS	II	CXS 12-1981	CCS	E
Sugars (dextrose anhydrous and dextrose monohydrate)	D-Glucose	ISO 5377	Titrimetry **(Lane & Eynon)**	I	CXS 212-1999	CCS	NPC-EWG
Sugars (dextrose anhydrous and dextrose monohydrate)	Solids, total	ISO 1741	Gravimetry (**drying at 100 °C,** vacuum oven)	I	CXS 212-1999	CCS	E
Sugars (glucose syrup and dried glucose syrup)	Solids, total	ISO 1742	Gravimetry (**drying at 70 °C,** vacuum oven)	I	CXS 212-1999	CCS	E

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee		PWG
Sugars (dextrose anhydrous and dextrose monohydrate, dried glucose syrup, glucose syrup, powdered dextrose, lactose)	Sulphated ash	ISO 5809	gravimetry (incineration at 525°C)	I	CXS 212-1999	CCS	E	
Sugars (soft brown sugar)	Sulphated ash	ICUMSA GS 3-11	Gravimetry (~~**ashing**~~ **incineration** at 650 °C)	I	CXS 212-1999	CCS	E	
Sugars (fructose, lactose)	pH	ICUMSA GS 1-23	Potentiometry	I	CXS 212-1999	CCS	E	
~~Sugars (lactose)~~	~~pH~~	~~ICUMSA GS 1/2/3/4/7/8-23~~	~~Potentiometry~~	~~I~~	CXS 212-1999	CCS		
Sugars (fructose, powdered sugar, white sugar, **plantation or mill white sugar**)	Conductivity ash	ICUMSA GS 2-17	Conductimetry	I	CXS 212-1999	CCS	E	
~~Sugars (powdered sugar)~~	~~Conductivity ash~~	~~ICUMSA GS 2/3-17~~	~~Conductimetry~~	~~I~~	CXS 212-1999	CCS		
~~Sugars (white sugar)~~	~~Conductivity ash~~	~~ICUMSA GS 2/3 17~~	~~Conductimetry~~	~~I~~	CXS 212-1999	CCS		
Sugars (plantation or mill white sugar, soft white sugar and soft brown sugar)	Conductivity ash	ICUMSA GS 1-13	Conductimetry	I	CXS 212-1999	CCS	E	
~~Sugars (soft white sugar and soft brown sugar)~~	~~Conductivity ash~~	~~ICUMSA GS 1/3/4/7/8-13~~	~~Conductimetry~~	~~I~~	CXS 212-1999	CCS		

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (fructose)	D-Fructose	ISO 10504	~~**Liquid chromatography (refractive index detection)**~~ **HPLC-RI**	II	CXS 212-1999	CCS	NPC-EWG
Sugars (fructose)	D-Glucose	ISO 10504	~~**Liquid chromatography (refractive index detection)**~~ **HPLC-RI**	II	CXS 212-1999	CCS	NPC-EWG
Sugars (fructose)	Loss on drying	ISO 1742	Gravimetry **(vacuum drying at 70°C)**	I	CXS 212-1999	CCS	E
Sugars (lactose)	Loss on drying	USP General Chapter 731	Gravimetry (drying at 120 °C ~~**for 16h**~~)	I	CXS 212-1999	CCS	EWG
Sugars (plantation or mill white sugar, powdered sugar, soft white sugar and soft brown sugar, white sugar)	Loss on drying	ICUMSA GS 2-15	Gravimetry (drying at 105 °C)	I	CXS 212-1999	CCS	E
~~Sugars (powdered sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~	CXS 212-1999	CCS	
~~Sugars (soft white sugar and soft brown sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~	CXS 212-1999	CCS	
~~Sugars (white sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~	CXS 212-1999	CCS	
Sugars (glucose syrup and dried glucose syrup)	Reducing sugar	ISO 5377	Titrimetry (Lane & Eynon)	I	CXS 212-1999	CCS	E

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (lactose)	Lactose, anhydrous (as reducing sugars)	USP General Chapter 731 and ICUMSA GS 4-3	~~**Titrimetry**~~ **Calculation from Loss on drying (80 °C) and Titrimetry - Lane & Enyon**	~~II~~ **IV**	CXS 212-1999	CCS	E
Sugars (plantation or mill white sugar)	Invert sugar (as reducing sugars)	ICUMSA GS 1-3	Titrimetry (Lane & Eynon)	~~I~~ **IV**	CXS 212-1999	CCS	EWG
Sugars (plantation or mill white sugar)	Invert sugar (as reducing sugars)	ICUMSA GS 1-5	Titrimetry – Luff Schoorl	~~I~~ **IV**	CXS 212-1999	CCS	EWG
Sugars (plantation or mill white sugar)	Invert sugar	FCC14th Ed Sucrose monograph, for Organic Impurities - Invert Sugar	HPLC - PAD	II	CXS 212-1999	CCS	EWG
Sugars (white sugar, powdered sugar)	Invert sugar (as reducing sugars)	ICUMSA GS 2-5 after filtration if necessary to remove any anticaking agents	Titrimetry - Knight & Allen	I	CXS 212-1999	CCS	EWG
~~Sugars (white sugar)~~	~~Invert sugar~~	~~ICUMSA GS 2/3-5~~	~~Titrimetry~~	~~I~~	CXS 212-1999	CCS	
Sugars (powdered sugar)	Invert sugar	ICUMSA GS 2-4 after filtration if necessary to remove any anticaking agents	Enzymatic Spectrophotometry-UV	IV	CXS 212-1999	CCS	EWG
Sugars (soft white sugar and soft brown sugar)	Invert sugar (as reducing sugars)	ICUMSA GS 4-3 (applicable at levels >10% m/m)	Titrimetry (Lane & Eynon)	I	CXS 212-1999	CCS	E
Sugars (soft white sugar and soft brown sugar)	Invert sugar (as reducing sugars)	ICUMSA GS 1-3 (applicable at levels <10% m/m)	Titrimetry (Lane & Eynon)	IV	CXS 212-1999	CCS	E

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (plantation or mill white sugars)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide) > 50 mg/kg ML**	AOAC 962.16 (for > 50 mg/kg ML)	Titrimetry Modified Monier – Williams	III	CXS 212-1999	CCS	NPC-EWG
Sugars (plantation or mill white sugars)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	AOAC 990.28	Titrimetry Modified Monier – Williams	III	CXS 212-1999		NPC-EWG
Sugars (plantation or mill white sugar)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	ICUMSA GS 2-33	Colorimetry	IV	CXS 212-1999	CCS	NPC-EWG
Sugars (all)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	US FDA Method C-004.04	LC-MS/MS	IV	CXS 212-1999	CCS	NPC-EWG
~~Sugars (plantation or mill white sugar)~~	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~	CXS 212-1999	CCS	
~~Sugars (powdered sugar and powdered dextrose)~~	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~	CXS 212-1999	CCS	
~~Sugars (raw cane sugar)~~	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~	CXS 212-1999	CCS	
~~Sugars (soft white sugar and soft brown sugar)~~	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~	CXS 212-1999	CCS	
~~Sugars (white sugar)~~	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	II	CXS 212-1999	CCS	

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (plantation or mill white sugar , powdered sugar and powdered dextrose, raw cane sugar, soft white sugar and soft brown sugar, white sugar)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	ICUMSA GS 2-35	Enzymatic Spectrophotometry-UV	~~**II**~~ **NPC**	CXS 212-1999	CCS	
Sugars (plantation or mill white sugar, powdered sugar and powdered dextrose, raw cane sugar, soft white sugar and soft brown sugar, white sugar)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	NMKL 135	Enzymatic Spectrophotometry-UV	**NPC** ~~**IV**~~	CXS 212-1999	CCS	NPC-EWG
Sugars (plantation or mill white sugar, powdered sugar and powdered dextrose, raw cane sugar, soft white sugar and soft brown sugar, white sugar)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	EN 1988-2	Enzymatic Spectrometry-UV	**NPC** ~~**II**~~	CXS 212-1999	CCS	NPC-EWG

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (dextrose anhydrous and dextrose monohydrate, fructose, glucose syrup and dried glucose syrup)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	ISO 5379	Acidimetry and nephelometry	IV	CXS 212-1999	CCS	NPC-EWG
Sugars (fructose)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	ISO 5379	Acidimetry and nephelometry	IV	CXS 212-1999	CCS	
Sugars (glucose syrup and dried glucose syrup)	~~**Sulphur dioxide**~~ **Sulfites (expressed as sulphur dioxide)**	ISO 5379	Acidimetry and nephelometry	IV	CXS 212-1999	CCS	
Sugars (soft white sugar and soft brown sugar)	Sucrose plus invert sugar (as reducing sugars)	ICUMSA GS 4-7	Titrimetry	~~I~~ **IV**	CXS 212-1999	CCS	E
Sugars (plantation and mill white sugar, soft white sugar, powdered sugar))	Colour **(ICUMSA Unit)**	ICUMSA GS 9-8	**Visible** Photometry	I	CXS 212-1999	CCS	
Sugars (powdered sugar)	Colour	ICUMSA GS 2-9	Photometry	I	CXS 212-1999	CCS	
Sugars (white sugar, powdered sugar)	Polarization	ICUMSA GS 2-1	Polarimetry	~~II~~ **III**	CXS 212-1999	CCS	E
Sugars (powdered sugar)	~~Polarization~~	~~ICUMSA GS 2/3-1 after filtration if necessary to remove any anticaking agents~~	~~Polarimetry~~	~~II~~	~~CXS 212-1999~~	CCS	
Sugars (powdered sugar)	Polarization	ICUMSA GS 3-1	Polarimetry	III	CXS 212-1999	CCS	E

Commodity	Provisions	Method	Principle	Type	Codex Standard	Committee	PWG
Sugars (white sugar, powdered sugar, plantation or mill white sugar))	Polarization	ICUMSA GS 1-1 (powdered sugars, if filtration to remove any anticaking agents is unnecessary)	Polarimetry	II	CXS 212-1999	CCS	E
Sugars (white sugar, powdered sugar, plantation or mill white sugar)	Polarization	ICUMSA GS 1-2	Polarimetry	III	CXS 212-1999	CCS	E
Sugars (plantation or mill white sugar)	Polarization	ICUMSA GS 1-1	Polarimetry	II	CXS 212-1999	CCS	E

Part 2: PROPOSED NUMERIC PERFORMANCE CRITERIA FOR SUGARS AND HONEY

Numeric performance criteria for powdered sugar and powdered dextrose

Provision	Not less (%)	LOD (%)	LOQ (%)	Precision (RSDR) (%) no more than	Min. appl. Range (%)
Dextrose anhydrous (as D-glucose)	99,5	9,95	19,9	4	93.5 - 105.5
Dextrose monohydrate (as D-glucose)	99,5	9,95	19,9	4	93.5 - 105.5
Glucose syrup	20	2	4	5	18.5 - 21.5
Fructose (laevulose)	98	9,8	19,6	4	92.1 - 103.9

Provision	Not more (%)	LOD (%)	LOQ (%)	Precision (RSDR) (%) no more than	Min. appl. Range (%)
Fructose (laevulose)	0,5	0,05	0,1	9	0.43 - 0.57

Commodity	Provision	ML (mg/kg)	LOD (mg/kg)	LOQ (mg/kg)	Precision (RSDR) (%) no more than	Min. appl. Range (mg/kg)
Honey	Hydroxymethylfurfural Content	40	4,0	8,0	18	29.0 - 51.0
Honey (declared origin from countries or regions with tropical ambient temperatures, and blends of these honeys)	Hydroxymethylfurfural Content	80	8,0	16,0	17	60.1 - 99.9

APPENDIX VI

PART 1: RECOMMENDED AMENDMENTS AND REVOCATIONS TO CXS 234-1999

Note: recommended additions are indicated in **bold** and **underline**, and deletion are indicated with ~~strikethrough~~. The columns 'Codex Standard', 'Committee' and 'Comments / Recommendations' are included for information and do not form part of the recommended amendments or deletions to CXS 234-1999.

Commodity	Provision	Method	Principle	Type	Codex Standard	Committee	*Comments / Recommendations*
Fish and Fishery Products							
~~Crackers from marine and freshwater fish, crustacean and molluscan shellfish~~	~~Crude protein~~	~~Described in the standard~~			CXS 222 - 2001	CCFFP	E for removal
~~Crackers from marine and freshwater fish, crustacean and molluscan shellfish~~	~~Moisture~~	~~Described in the standard~~					E for revocation
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Moisture	AOAC 950.46B (air drying)	Gravimetry	I	CXS 222 - 2001	CCFFP	Recommended for endorsement
~~Raw bivalve molluscs (shucked)~~	~~Drained weight~~	~~Described in the standard~~			CXS 292-2008	CCFFP	E for revocation
Raw bivalve molluscs (shucked)	Drained weight	AOAC 953.11	Gravimetry	I	CXS 292-2008	CCFFP	Recommended for endorsement

~~Quick frozen fish sticks (fish fingers), fish portions and fish fillets – breaded or in batter~~	~~Determination of fish content (declaration) – Nitrogen~~	~~ISO 937 and see Appendix VI~~	~~Titrimetry (Kjeldahl digestion) and calculation~~	~~II~~	~~CXS 166–1989~~	~~CCFFP~~	E for removal as separate
~~Quick frozen fish sticks (fish fingers), fish portions and fish fillets – breaded or in batter~~	~~Determination of fish content (declaration) – Moisture~~	~~ISO 1442 and see Appendix VI~~	~~Gravimetry and calculation~~	~~I~~	~~CXS 166–1989~~	~~CCFFP~~	E for removal as separate
~~Quick frozen fish sticks (fish fingers), fish portions and fish fillets – breaded or in batter~~	~~Determination of fish content (declaration) – Total fat~~	~~ISO 1443 and see Appendix VI~~	~~Gravimetry and calculation~~	~~I~~	~~CXS 166–1989~~	~~CCFFP~~	E for removal as separate
~~Quick frozen fish sticks (fish fingers), fish portions and fish fillets – breaded or in batter~~	~~Determination of fish content (declaration) – Ash~~	~~ISO 1443 and see Appendix VI~~	~~Gravimetry and calculation~~	~~I~~	~~CXS 166–1989~~	~~CCFFP~~	E for removal as separate
Quick frozen fish sticks (fish fingers), fish portions and fish fillets – breaded or in batter	Determination of fish content (declaration) – Nitrogen Moisture Total fat Ash	 ISO 937 and ISO 1442 and ISO 1443 and ISO 936	Calculation from Titrimetry (Kjeldahl digestion) and gravimetry	I	CXS 166–1989	CCFFP	All combined in one line because they are required as part of the calculation. Note: link to Appendix VI, calculation: other method (1) Recommended for endorsement
Fats and oils							

Edible Fats and oils not covered by individual standards	Acidity: acid value	ISO 660 / AOCS Cd 3d-63	Titrimetry	I	CXS 19-1981	CCFO	Recommended for endorsement (commodity name change)
Edible Fats and oils not covered by individual standards	Copper and iron	AOAC 990.05 / ISO 8294 / AOCS Ca 18b-91	Atomic absorption spectrophotometry (direct graphite furnace)	II	CXS 19-1981	CCFO	Recommended for endorsement (commodity name change)
~~Edible Fats and Oils not Covered by Individual Standards~~	~~Peroxide Value~~	~~ISO 3961:1998~~	~~Titrimetry (colorimetric)~~		~~CXS 19-1981~~	~~CCFO~~	E for revocation
Edible Fats and Oils not Covered by Individual Standards	Peroxide Value	AOCS Cd 8b-90 / ISO 3960 / NMKL 158	Titrimetry **(Colorimetry)**	I	CXS 19-1981	CCFO	Recommended for endorsement
~~Fats and Oils not Covered by Individual Standards~~	~~Soap content~~	~~BS 684 Section 2.65~~			~~CXS 19-1981~~	~~CCFO~~	E for revocation
~~Named animal fats~~	~~Fatty acid composition~~	~~ISO 5508: 1995/ 5509: 1999~~			~~CXS 211-1999~~	~~CCFO~~	E for revocation
Named animal fats	Fatty acid composition	AOCS Ce 2-66 and AOCS Ce 1j-07	Preparation of methyl esters and GC-FID	II	CXS 211-1999	CCFO	Recommended for endorsement
Named animal fats	Fatty acid composition	ISO 12966-2 and ISO 12966-4	Preparation of methyl esters and ~~gas chromatography~~ GC-FID	III	CXS 211-1999	CCFO	Recommended for endorsement
~~Named animal fats~~	~~Soap content~~	~~BS 684 Section 2.5~~			CXS 211-1999	CCFO	E for revocation
Fat Spreads and Blended Spreads	Milk fat content ~~(Butyric acid)~~	~~AOAC 990.27; AOCS Ca 5c-87 (97)~~			~~CXS 256-1999~~	~~CCFO~~	E for revocation

Fat Spreads and Blended Spreads	Milk fat content[1] ~~(Butyric acid)~~	AOAC 2012.13 / ISO 16958 | IDF 231	GC-FID and calculation*	I	CXS 256-1999	CCFO	Recommended for endorsement
~~Fat Spreads and Blended Spreads~~	~~Salt content~~	~~IDF 12B: 1988, ISO CD 1738 or AOAC 960.29.~~			~~CXS 256-1999~~	~~CCFO~~	E for revocation
~~Fat Spreads and Blended Spreads~~	~~Salt content~~	~~AOAC 960.29/ ISO 1738| IDF 12~~			~~CXS 256-1999~~	~~CCFO~~	E for revocation
Fat Spreads and Blended Spreads	Salt content	ISO 15648 | IDF 179	**Titrimetry (Potentiometry)**	II	CXS 256-1999	CCFO	Recommended for endorsement
Fat Spreads and Blended Spreads	Salt content	AOAC 2016.03 / ISO 21422 | IDF 242	**Titrimetry (Potentiometry)**	III			Recommended for endorsement
~~Fat Spreads and Blended Spreads~~	~~Vitamin A~~	~~AOAC 985.30~~; ~~AOAC 992.04; or JAOAC 1980, 63, 4~~	~~HPLC~~ ~~HPLC~~		~~CXS 256-1999~~	~~CCFO~~	E for revocation
Fat Spreads and Blended Spreads	Vitamin A	EN 12823	HPLC-UV ~~detection~~	II	CXS 256-1999	CCFO	Recommended for endorsement
~~Fat Spreads and Blended Spreads~~	~~Vitamin D~~	~~AOAC 981.17~~	~~HPLC~~		CXS 256-1999	CCFO	E for revocation
Fat Spreads and Blended Spreads	Vitamin D	EN 12821 / NMKL 167	HPLC-UV	II	CXS 256-1999	CCFO	Recommended for endorsement
Fat Spreads and Blended Spreads	Vitamin E	ISO 9936~~:1997~~	HPLC-UV ~~detection~~	~~II~~ III	CXS 256-1999	CCFO	Recommended for endorsement
Fat Spreads and Blended	Vitamin E	EN 12822	HPLC- UV ~~detection~~	II	CXS 256-1999	CCFO	Recommended for endorsement

[1] milk fat is measured as butyric acid with a conversion factor

Spreads							
~~Named vegetable oils~~	~~Fatty acid composition~~	~~ISO 5509: 2000~~			CXS 210-1999	CCFO	E for revocation
Named vegetable oils	Fatty acid composition	AOCS Ce 2-66 and AOCS Ce 1h-05	Preparation of methyl esters and GC-FID	II	CXS 210-1999	CCFO	Recommended for endorsement
Named vegetable oils	Fatty acid composition	ISO 12966-2 and ISO 12966-4	Preparation of methyl esters and GC-FID	III	CXS 210-1999	CCFO	Recommended for endorsement
Cereals, Pulses, Legumes and Derived Products							
Maize (corn)	Broken kernels	ISO 5223~~-1983~~	~~Gravimetry -~~ Sieving ~~(4.5 mm round aperture sieve)~~	I	CXS 153-1985	CCCPL	Recommended for endorsement
Sorghum grains	Fibre, crude	ICC 113 / ISO 6541	Gravimetry (~~separation,~~ incineration at 550°C)	I	CXS 172-1989	CCCPL	Recommended for endorsement
Rice	Head rice	ISO 7301 ~~(Annex A)~~	Visual examination, ~~length~~, micrometry, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Large broken kernel	ISO 7301 ~~(Annex A)~~	Visual examination, ~~length,~~ micrometry, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Medium broken kernel	ISO 7301 ~~(Annex A)~~	Visual examination, ~~length~~, micrometry, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Small broken kernel	ISO 7301 ~~(Annex A)~~	Visual examination, ~~length,~~ micrometry, sieving, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Chips	ISO 7301 ~~(Annex A)~~	Sieving, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Heat-damaged kernels	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Damaged	ISO 7301 ~~(Annex A)~~	Visual examination,	I	CXS	CCCPL	Recommended for endorsement

	kernels		gravimetry		198-1995		
Rice	Immature kernels	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Chalky kernels	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Red kernels	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Red-streaked kernels	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Pecks	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Rice	Maximum recommended levels of other types of rice	ISO 7301 ~~(Annex A)~~	Visual examination, gravimetry	I	CXS 198-1995	CCCPL	Recommended for endorsement
Wheat and durum wheat	Minimum test weight	ISO 7971**-1**	Gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
Wheat and durum wheat	Shrunken and broken kernels	ISO 5223	Sieving	I	CXS 199-1995	CCCPL	Recommended for endorsement
Wheat ~~and durum wheat~~	Edible grains other than wheat and durum wheat	ISO 7970 ~~(Annex C)~~	Sieving and gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
Wheat ~~and durum wheat~~	Damaged kernels	ISO 7970 ~~(Annex C)~~	Sieving and gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
Wheat ~~and durum wheat~~	Insect bored kernels	~~To be developed~~ ISO 7970 ~~(Annex C/D)~~	Visual examination and gravimetry	I	CXS 199-1995	CCCPL	May be covered by “grain attacked by pests - grain that shows damage owing to an attack by rodents, insects, mites or other pests” OPTION 1 Selected. OPTION 1: As CCCPL is now

							identified as an active committee, a request could be sent to CCCPL to establish whether the provision should be changed to 'Grain attacked by pests' and if yes, would the CXS 199 specifications still be applicable? ~~OPTION 2: Is it possible to visually identify and segregate the grain with insect bored kernels from those attacked by rodents, mites or other pests? If yes, an adaptation of ISO 7970 text may be required for the existing provision and specification. Is this a possibility?~~
~~Wheat and~~ Durum wheat	Edible grains other than wheat and durum wheat	ISO 11051 ~~(Annex A)~~	Sieving and gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
~~Wheat and~~ Durum wheat	Damaged kernels	ISO 11051 ~~(Annex A)~~	Sieving and gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
~~Wheat and~~ Durum wheat	Insect bored kernels	ISO 11051 ~~(Annex A)~~	Visual examination and gravimetry	I	CXS 199-1995	CCCPL	Recommended for endorsement
Oats	Minimum test weight	ISO 7971**-1**	Gravimetry	I	CXS 201-1995	CCCPL	Recommended for endorsement

PART 2: RECOMMENDED AMENDMENTS TO COMMODITY STANDARDS

Note: Recommended additions are indicated in **bold and underline**, and deletion are indicated with ~~strikethrough~~

***STANDARD FOR NAMED VEGETABLE OILS* (CXS 210-1999)** Recommended for endorsement

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended methods of analysis and sampling* (CXS 234-1999)[i] relevant to the provisions in this standard, shall be used.

~~8.1 Determination of GLC ranges of fatty acid composition~~

~~According to ISO 5509:2000.~~

***STANDARD FOR CRACKERS FROM MARINE AND FRESHWATER FISH, CRUSTACEAN AND MOLLUSCAN SHELLFISH* (CXS 222-2001)**

Recommended for endorsement

7.3 Analysis

For checking the compliance with this standard, the methods of analysis and sampling contained in CXS 234- 1999 relevant to the provisions in this standard shall be used.

~~7.3.1 Determination of crude protein~~

~~According to AOAC 920.87 or 960.52.~~

~~7.3.2 Determination of moisture~~

~~According to AOAC 950.46B (air drying)~~

***STANDARD FOR LIVE AND RAW BIVALVE MOLLUSCS* (CXS 292-2008)**

Recommended for endorsement

17.3 Analysis

For checking the compliance with this standard, the methods of analysis and sampling contained in *Recommended methods of analysis and sampling* relevant to the provisions in this standard shall be used

~~17.3.1 Determination of drained weight~~

~~In the case of shucked bivalve molluscs, the drained weight shall be determined according to AOAC International official method 953.11.~~

***STANDARD FOR MAIZE (CORN)* (CXS 153-1985)**

Recommended for endorsement

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this Standard, the methods of analysis and sampling contained in the Recommended Methods of Analysis and Sampling (CXS 234-1999) relevant to the provisions in this Standard shall be used.

ANNEX

In those instances where more than one factor limit and/or method of analysis is given we strongly recommend that users specify the appropriate limit and method of analysis.

Factor/Description	Limit	Method of analysis
DEFECTS		
▪ blemished grains: grains which are insect or vermin damaged, stained, diseased, discoloured, germinated, frost damaged, or otherwise materially damaged	MAX: 7.0% of which diseased grains must not exceed 0.5%	Visual Examination
▪ broken kernels	MAX: 6.0%	~~ISO 5223-1983 (4.50 mm metal sieve)~~ **Refer to Section 8**
▪ other grains	MAX: 2.0%	Visual Examination

***STANDARD FOR SORGHUM GRAINS* (CXS 172-1989)**

Recommended for endorsement

METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended methods of analysis and sampling* (CXS 234-1999)[ii] relevant to the provisions in this standard shall be used.

ANNEX

In those instances where more than one factor limit and/or method of analysis is given, we strongly recommend that users specify the appropriate limit and method of analysis.

CRUDE FIBRE	Buyer preference	~~ICC 113 Determination of crude fibre value (Type I) – or – ISO 6541 (1981)~~

~~Agricultural food products determination of crude fibre content-modified Scharrer method~~

Refer to Section 8

***STANDARD FOR RICE* (CXS 198-1995)**

Recommended for endorsement

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this standard, shall be used.

Recommended for endorsement

ANNEX

Factor/Description		Limit	Method of analysis
4.	**OTHER QUALITY FACTORS** In those instances where more than one factor limit and/or method of analysis is given it is strongly recommended that users specify the appropriate limit and method of analysis.		
4.1	**Whole Kernel** is a kernel without any broken part.		
4.1.1	**Head Rice** is a kernel, the length of which is equal to or greater than three quarters of the average length of the corresponding whole kernel.	buyer preference	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.1.2	**Large Broken Kernel** are fragments of kernel, the length of which is less than three-quarters but greater than one-half of the average length of a corresponding whole kernel.	buyer preference	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.1.3	**Medium Broken Kernel** are fragments of kernel, the length of which is equal to or less than one-half but greater than one-quarter of the average length of a corresponding whole kernel.	buyer preference	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.1.4	**Small Broken Kernel** are fragments of kernel, the length of which is equal to or less than one-quarter of the average length of a corresponding whole kernel but which does not pass through a metal sieve with round perforation 1.4 mm in	buyer preference	~~ISO 7301 (Annex A)~~ **Refer to Section 8**

	diameter.					
4.1.5	**Chips** are fragments of kernel which pass through a metal sieve with round perforations 1.4 mm in diameter.	0.1% m/m				~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2	**Defective Kernels**	**Husked Rice**	**Milled Rice**	**Husked Parboiled Rice**	**Milled Parboiled Rice**	
4.2.1	**Heat-Damaged Kernels** are kernels, whole or broken, that have changed their normal colour as a result of heating. This category includes whole or broken kernels that are yellow due to alteration. Parboiled rice in a batch of non-parboiled rice is also included in this category.	4.0% m/m*	3.0% m/m	8.0% m/m*	6.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.2	**Damaged Kernels** are kernels, whole or broken, showing obvious deterioration due to moisture, pests, diseases, or other causes, but excluding heat-damaged kernels.	4.0% m/m	3.0% m/m	4.0% m/m	3.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.3	**Immature Kernels** are unripe and/or undeveloped whole or broken kernels.	12.0% m/m	2.0% m/m	12.0% m/m	2.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.4	**Chalky Kernels** are whole or broken kernels except for glutinous rice, of which at least three-quarters of the surface has an opaque and floury appearance.	11.0% m/m*	11.0% m/m	N/A	N/A	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.5	**Red Kernels** are whole or broken kernels with a red-coloured pericarp covering more than one-quarter of their surface.	12.0% m/m	4.0% m/m	12.0% m/m	4.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.6	**Red-Streaked Kernels** are kernels, whole or broken, with red streaks, the lengths of which may be equal to or greater than one-half of that of the whole kernel, but the surface area covered by these red streaks shall be less than one-quarter of the total surface.	N/A	8.0% m/m	N/A	8.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.2.7	**Pecks** are whole or broken kernels of parboiled rice of which more than one-quarter of the surface is dark brown or black in colour.	N/A	N/A	4.0% m/m*	2.0% m/m	~~ISO 7301 (Annex A)~~ **Refer to Section 8**
4.3	**Maximum Recommended Levels of Other Types of Rice**					~~ISO 7301 (Annex A)~~

						Refer to Section 8
	Paddy Rice Husked Rice Milled Rice Glutinous Rice	2.5% m/m N/A N/A 1.0% m/m	0.3% m/m 1.0% m/m N/A 1.0% m/m	2.5% m/m N/A 2.0% m/m 1.0% m/m	0.3% m/m 1.0% m/m% 2.0% m/m% 1.0% m/m	

***STANDARD FOR WHEAT AND DURUM WHEAT* (CXS 199-1995)**

Recommended for endorsement

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this standard, shall be used.

ANNEX

In those instances where more than one factor limit and/or method of analysis is given it is strongly recommended that users specify the appropriate limit and method of analysis.

Factor/Description	**Limit**		**Method of analysis**
	Wheat	**Durum Wheat**	
1. **Minimum test weight:** the weight of a hundred litre volume expressed in kilograms per hectolitre.	68	70	~~The test weight shall be the weight per ISO 7971-1986 expressed in kilograms per hectolitre as determined on a test portion of the original~~ **~~sample.~~** **Refer to Section 8**
2. **Shrunken and broken kernels:** broken or shrunken wheat or durum wheat which will pass through a 1.7 mm x 20 oblong-holed metal sieve for wheat and through a 1.9 mm x 20 oblong-holed metal sieve for durum wheat.	5.0% m/m max	6.0% m/m max	~~ISO 5223-1983 "Test sieves for cereals".~~ **Refer to Section 8**
3. **Edible Grains other than wheat and durum wheat**	2.0% m/m max	3.0% m/m max	~~ISO 7970-1987: (Annex C)~~

(whole or identifiably broken)			**Refer to Section 8**
4. **Damaged kernels** (including pieces of kernels that show visible deterioration due to moisture, weather, disease, mould, heating, fermentation, sprouting, or other causes.)	6.0% m/m max	4.0% m/m max	~~ISO 7970-1987: (Annex C)~~ **Refer to Section 8**
5. **Insect bored kernels:** kernels which have been visibly bored or tunnelled by insects	1.5% m/m	2.5% m/m	~~To be developed~~ **Refer to Section 8**

***STANDARD FOR DEGERMED MAIZE (CORN) MEAL AND MAIZE (CORN) GRITS* (CXS 155-1985)**

Recommended for endorsement

8 METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended methods of analysis and sampling* (CXS 234-1999)[iii] relevant to the provisions in this standard, shall be used.

ANNEX

In those instances where more than one factor limit and/or method of analysis is given, we strongly recommend that users specify the appropriate limit and method of analysis.

Factor/Description	**Limit**	**Method of analysis**
ASH	Max: 1.0% on a dry weight basis	Refer to Section 8
PROTEIN (N x 6.25)	Min: 7.0% on a dry weight basis	~~According to ISO 1871:1975.~~ **Refer to Section 8.**
CRUDE FAT	Max: 2.25% on a dry weight basis	~~According to ISO 5986:1983.~~ **Refer to Section 8.**

***STANDARD FOR OATS* (CXS 201-1995)**

Recommended for endorsement

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this standard, shall be used.

ANNEX

In those instances where more than one factor limit and/or method of analysis is given it is strongly recommended that users specify the appropriate limit and method of analysis.

	Factor/Description	Limit	Method of analysis
1	**Minimum test weight:** The weight of a hundred litre volume of oats expressed as kilograms per hectolitre.	At least 46 kg/hl	~~The test weight shall be the weight per ISO 7971-1986 or any other equipment giving equivalent results expressed as kilograms per hectolitre as determined on a test portion of the original sample~~ **Refer to Section 8**

APPENDIX II

METHODS RECOMMENDED TO BE RETAINED IN CXS 234-1999 WITH NO AMENDMENTS NEEDED

Recommended for endorsement

Commodity	Provision	Method	Principle	Type	Codex Standard	Committee	Comments
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Crude protein	AOAC 2001.11	Titrimetry (Kjeldahl digestion)	IV	CXS 222-2001	CCFFP	AOAC 920.87 and AOAC 960.52 recommended to be replaced with AOAC 2001.11. This method has been endorsed by CCMAS43 (2024)
Fats and oils (all)	Soap content	ISO 10539 / AOCS Cc 17-95	Titrimetry **(Alkalimetry)**	I	The relevant standards under consideration are CXS 19-1981 and CXS 211-1999.	CCFO	BS 684-2.6 has been superseded by ISO 10539 (determination of soap). BS 684-2.5 has been superseded by ISO 10539 / AOCS Cc 17-95 (determination of soap).
Degermed maize (corn) meal and maize (corn) grits	Protein ~~(N x 6.25)~~	ICC 105/2 and ICC 110/1	Calculation from moisture and Titrimetry (Kjeldahl digestion)	I	CXS 155-1985	CCCPL	Revoke the method ISO 1871:1975 found in CXS 155-1985 ICC methods adopted by CAC46 (present in current CXS 234)
Degermed maize (corn) meal and maize (corn) grits	Crude fat	AOAC 945.38F and 920.39C and ICC 110/1	Calculation from moisture and Gravimetry ~~(ether extraction)~~	I	CXS 155-1985	CCCPL	Revoke the method ISO 5986:1983 found in CXS 155-1985 Methods adopted by CAC46 (present in current CXS 234)

APPENDIX III

PROVISIONS FOR WHICH THE EWG WAS UNABLE TO RECOMMEND METHODS, PRINCIPLES AND TYPING

Proposal for new work examine national standards to determine methods

Commodity	Provision	Method	Principle	Type	Codex Standard	Committee		Comments
Oats	Hull-less and broken kernels	To be developed			CXS 201-1995	CCCPL		
Oats	Edible grains other than oats	To be developed			CXS 201-1995	CCCPL		
Oats	Damaged kernels	To be developed			CXS 201-1995	CCCPL		
Oats	Wild oats	To be developed			CXS 201-1995	CCCPL		
Oats	Insect bored kernels	To be developed			CXS 201-1995	CCCPL		
Oats	Blemished grains	To be developed			CXS 201-1995	CCCPL		
Peanuts	In-pod defects: Empty pods	To be determined			CXS 200-1995	CCCPL		**NOTE: ISO 6478 withdrawn**
Peanuts	In-pod defects: Damaged pods	To be determined			CXS 200-1995	CCCPL		
Peanuts	In-pod defects: Discoloured pods	To be determined			CXS 200-1995	CCCPL		
Peanuts	Kernel defects: Damaged kernels	To be determined **FDA Method MPM: V.10 (v89)**	**Visual Examination-Gravimetry**	**I**	CXS 200-1995	CCCPL		
Peanuts	Kernel defects: Discoloured kernels	To be determined			CXS 200-1995	CCCPL		

Commodity	Provision	Method	Principle	Type	Codex Standard	Committee		Comments
Peanuts	Kernel defects: Broken and split kernels	To be determined			CXS 200-1995	CCCPL		
Peanuts	Peanuts other than the designated type	To be determined			CXS 200-1995	CCCPL		

APPENDIX VII

Numeric performance criteria for total aflatoxins and ochratoxin A in certain spices

Commodity	Analyte	ML (µg/kg)	LOD (µg/kg)	LOQ (µg/kg)	Precision (%)	Minimal applicable range (µg/kg)	Recovery (%)	Example Methods
Chilli pepper, nutmeg	AFT B1+B2+G1+G2	20	[≤ 4]	[≤ 8]	[≤ 44]	[11.2 – 28.8]	[60 – 115]	EN 17424:2020
	AFB1	-	≤ 1	≤ 2	≤ 44	2.8 – **28.8**	40 – 120	
	AFB2	-	≤ 1	≤ 2	≤ 44	2.8 – **28.8**	40 – 120	EN 17641:2022
	AFG1	-	≤ 1	≤ 2	≤ 44	2.8 – **28.8**	40 – 120	
	AFG2	-	≤ 1	≤ 2	≤ 44	2.8 – **28.8**	40 – 120	
Chilli pepper, paprika, nutmeg	OTA	20	≤ 4	≤ 8	≤ 44	11.2 – **28.8**	60 – 115	EN 17250:2020 EN 17641:2022

Numeric performance criteria for total aflatoxins in certain food matrices

Commodity	Analyte	ML (µg/kg)	LOD (µg/kg)	LOQ (µg/kg)	Precision (%)	Minimal applicable range (µg/kg)	Recovery (%)	Example Method
Peanuts intended for further processing	AFT B1+B2+G1+G2	15	[≤ 3]	[≤ 6]	[≤ 44]	[8.4 - 21.6]	[60 – 115]	EN 14123:2007 EN 17641:2022
	AFB1	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFB2	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFG1	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFG2	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
Tree nuts destined for further processing: almonds, hazelnuts, pistachios, and shelled Brazil nuts	AFT B1+B2+G1+G2	15	[≤ 3]	[≤ 6]	[≤ 44]	[8.4 - 21.6]	[60 – 115]	EN 14123:2007 EN 17641:2022
	AFB1	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFB2	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFG1	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
	AFG2	-	≤ 0.75	≤ 1.5	≤ 44	2.1 - **21.6**	40 - 120	
Ready-to-eat tree nuts: almonds, hazelnuts, pistachios and shelled Brazil nuts	AFT B1+B2+G1+G2	10	[≤ 2]	[≤ 4]	[< 44]	[5.6 - 14.4]	[60 – 115]	EN 17641:2022
	AFB1	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFB2	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFG1	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFG2	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
Dried figs	AFT B1+B2+G1+G2	10	[≤ 2]	[≤ 4]	[≤ 44]	[5.6 - 14.4]	[60 – 115]	EN 17641:2022
	AFB1	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFB2	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFG1	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	
	AFG2	-	≤ 0.5	≤ 1.0	≤ 44	1.4 - **14.4**	40 - 120	

APPENDIX VIII

Methods recommended for revocation in CXS 347-2005 and not to be endorsed for inclusion in CXS 234

Provision	Method	Principle	Type	Comments
~~Vitamin C (Sections 3.2 Quality criteria and 3.3 Authenticity)~~	~~EN 14130 (2004)~~	~~High performance liquid chromatography (HPLC)~~	~~II~~	No longer supported by CEN
~~Pection (Section 4 Additives)~~	~~IFU Method No. 26 (1964/1995)~~	~~Precipitation / Photometry~~	~~I~~	Lack of validation data
~~Stable hydrogen isotope ratio of water from fruit juices (Sections 3.2 Quality criteria and 3.3 Authenticity)~~	~~ENV 12142 (1997)~~	~~Stable isotope mass spectrometry~~	~~II~~	No longer supported by CEN
~~Carbon dioxide (Section 4 Additives and 5 Processing aids)~~	~~IF Method No. 42 (1976)~~	~~Titrimetry (back titration after precipitation)~~	~~IV~~	No longer supported by IFU