

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
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Agenda Item 3

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ORIGINAL LANGUAGE ONLY

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON METHODS OF ANALYSIS SAMPLING

40th Session

Budapest, Hungary, 27 – 31 May 2019

ENDORSEMENT OF METHODS OF ANALYSIS PROVISIONS AND SAMPLING PLANS IN CODEX STANDARDS

The report of PWG on Endorsement of Method of Analysis and Sampling

CODEX COMMITTEE ON NUTRITION AND FOODS FOR SPECIAL DIETARY USES (CCNFSDU40)

Methods of analysis for provisions in the Standard for Infant Formula and Formulas for Special Medical Purposes Intended for Infants (CXS 72-1981)¹

The PWG recommends the endorsement, retyping and removal of the methods listed in Appendix I Table 1 for calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, zinc, Vitamin K, and Folic Acid in Infant Formula. Specifically, this includes the endorsement of AOAC 2015.06 / ISO 21424 | IDF 243 as Type II, the retyping of ISO 8070 | IDF 119 from Type II to Type III and the removal of AOAC 984.27 for calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, zinc. The PWG recommends the endorsement of AOAC 2015.09 / ISO 21446 as Type II for Vitamin K. The PWG recommends the endorsement of AOAC 2011.06 as Type II, the retyping of AOAC 992.05 / EN 14131 from Type II to Type III and the removal of J AOAC Int. 2000:83; 1141-1148 and

J Chromatogr. A., 928, 77-90, 2001 for Folic Acid. The PWG recommends that these actions be referred to the CAC for adoption.

The PWG recommended the endorsement of AOAC 2011.14 / ISO 15151 | IDF 229 as a Type III for the 9 minerals (Appendix I Table 2). The PWG recommends that these be referred to CCNFSDU prior to adoption by CAC.

The PWG also recommended that CCNFSDU consider establishing numeric criteria for calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, and zinc and identifying methods that meet the criteria.

The PWG also notes that there were some questions about the applicability of ISO 8070 | IDF 119 to infant formula and if Type III or Type IV was appropriate. The PWG agreed that because the method had been identified as the Type II and used in this manner, it would be retained as a Type III, but reviewed either during the establishment of criteria, or at CCMAS41. Additionally, the performance characteristics of other methods for minerals (e.g. AOAC 985.35) that were not reviewed (i.e. remained as Type III) were also in question. As with ISO 8070 | IDF 119, these methods will be reviewed either during the establishment of criteria, or at CCMAS41.

The PWG also noted that CXS234 contains a method for Vitamin K in follow-up-formula and recommended that the Committee ask CCNFSDU if AOAC 2015.09 / ISO 21446 should also be endorsed as a Type II method for this commodity.

The PWG noted that based on REP19/NFSDU the forms of analytes determined by the methods for Vitamin K and folic acid, respectively, are consistent with those specified in the relevant Codex texts

¹REP19/NFSDU, para 156, Appendix IX

COMMITTEE ON SPICES AND CULINARY HERBS (CCSCH4)

Methods of analysis for provisions in the proposed draft standards for dried or dehydrated garlic, dried oregano, dried roots, rhizomes and bulbs – dried or dehydrated ginger, dried basil, dried floral parts – dried cloves, and saffron²

The PWG did not recommend endorsement of the methods referred from CCSCCH and noted that the CCSCCH had in many cases supplied multiple Type I methods for the same provision and commodity, even when these methods were not identical. In some cases CCSCCH referred a combination of Type I and Type II methods for the same commodity and provision. The PWG attempted to make a number of selections of methods, both by referring to the method scope and by attempting to be consistent with decisions made at CCMAS38. The PWG agreed that these selections were not final recommendations for endorsement, but recommends they be referred back to CCSCCH as possible examples for CCSCCH consideration and guidance on CCSCCH's selection of methods for future referral to CCMAS. The PWG also recommends that CCMAS communicate to CCSCCH the following items

CCSCCH should note:

The provisions such as Total Ash and Acid Insoluble Ash, and Volatile Oils (plus other chemical characteristic provisions) are listed as "on dry basis" in the Codex Standard. Therefore, this must be captured in the provision of CXS234 and requires a calculation from a determination of moisture prior to ashing or volatile oil determinations. These steps must be captured in CXS 234 (App II)

It is important to establish and utilize consistent provisions and terminology when possible. For example: either "Mammalian excreta" or "Excreta Mammalian" should be selected. The PWG notes that Mammalian Excreta was used in previous CCSCCH tables and endorsed on this Committee (CCMAS38).

Similarly, "Extraneous Matter" and "Extraneous vegetable matter" seem to be used interchangeably and requires clarification.

In the Codex Standard, the specification for Mammalian Excreta is established on a w/w basis (mg/kg), while in the methods referred has units of particle/w (particles/ 10g) for AOAC 993.27.

References to methods, including formatting and hyperlinks needs to be consistent to ensure that the correct methods are being referenced.

COMMITTEE ON FATS AND OILS (CCFO26)

The PWG discussed the methods, noting that they are all Type I; therefore, only 1 method can be listed unless the methods are identical. It was also noted that the Committee had not come to a final definition of identical, therefore the current active definition could be applied. Using the active definition ("*two or more methods which have the same principle, the same chemicals in the same concentrations, in the same procedure/sequence and the same measuring equipment but are published by different SDOs and written in differing styles*"), it was generally agreed these three methods are not identical. The PWG could not reach consensus on the most appropriate method and could not recommend one as the Type I method.

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he PWG reviewed the methods of analysis presented as the report of the Dairy Package eWG. All changes and retentions that were agreed upon are listed in App IV. The PWG recommends that these be captured in CXS234. Methods that need further review or other action are described below and are listed in App V. Appendix V also includes the list of Dairy Methods that have not yet been reviewed. For the methods that have not been reviewed, the PWG recommends establishing an intersession working group to finalize the review of these remaining methods. The United States volunteered to lead the intersession eWG.

For the Commodity "Milk Products" it was noted that there is a not a "Milk Products" Codex Standard, therefore this commodity name should be removed from CXS234. The PWG agreed that it would be beneficial to determine if there is a compelling reason that this commodity classification exists prior to removal from CXS 234. Therefore, the PWG recommends the Committee to refer a question to the CCMMP about the reasons and nature of the Milk Product category. The PWG did note that CCMMP is not an active committee and wonders if such an inquiry could be handled through electronic communications.

PWG noted that a new method for the determination of Iron in Edible Casein is required. Several delegates suggested that numeric performance criteria for this commodity and for lead in butter, edible casein, and whey powder would be beneficial. The PWG agreed to recommend the development of numeric

²REP19/SCH, paras 30, 39, 47, 66, 88, 95 and Appendices II, III, IV, V, VI, VII

performance criteria for these commodities and provision. The PWG did not identify a delegation to undertake this work.

A delegate expressed concern about the prescriptiveness of ISO 5537 | IDF 26 and offered validation data from a previous version of the IDF 26 method. The PWG agreed that a new method with appropriate validation data can be submitted for endorsement at a future CCMAS. Until that time, no change to the method type for ISO 5537 | IDF 26 would be implemented.

There are two Type I methods currently listed in CXS234 for peroxide in MilkFat Products. These methods are not identical, and one was recommended for removal by the owner of the method (AOAC). However the PWG could not come to a consensus on the removal of this method.

The method (ISO 20128 | IDF 192) listed for determination of *Lactobacillus acidophilus* in fermented milks is actually for "Presumptive *Lactobacillus acidophilus*" and may not be appropriate to meet the specification in the standard. The PWG recommends outreach to either the CCMMP or other experts in determining the applicability of this method.

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The Committee reviewed the proposal on Gluten made in MA40_3_Add2.

The PWG did not reach consensus on recommending the methods for endorsement as Type I methods. There was agreement that the PWG should recommend that the Committee should refer these methods to CCNFSDU for further discussion and consideration.

There was general agreement that the R5 Menendez method (AOAC 2012.01/AACC 38-50.01) has not been validated in All Gluten Free Foods, as is listed in CXS234, and that broad commodity description limits the ability to endorsement additional methods of analysis to test the broad array of gluten free foods that are currently available. There was also general agreement that it is unusual to have a journal publication as the reference to the method in CXS 234. While this is atypical it is not restricted. The PWG also agreed that any change to the commodity should be considered and discussed by CCNFSDU prior to a change.

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Detailed discussions of MA40_3 _Add3 were not performed at the PWG. The PWG thanked AOCS for an excellent start on the review of the Fats and Oils Methods and agreed to recommend that this table of methods be utilized as a starting point for further review of these methods and their application to Codex Standards. Ideally, this further review can be accomplished by an intersession electronic work group. The terms of reference of the group and a chair of such a group was not identified.

COMMITTEE ON NUTRITION AND FOODS FOR SPECIAL DIETARY USES (CCNFSDU40)**Appendix I****Methods of analysis for infant formula****Table 1: For submission to CAC**

Commodity	Provision	Method	Principle	Proposed Type
Infant Formula	Calcium	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		ISO 8070 IDF 119	Flame atomic absorption spectrophotometry	IIII
		AOAC 985.35	Flame atomic absorption spectrometry	III
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Copper	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		AOAC 985.35	Flame atomic absorption spectrophotometry	IIII
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Iron	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		AOAC 985.35	Flame atomic absorption spectrometry	III
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Magnesium	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		ISO 8070 IDF 119	Flame atomic absorption spectrophotometry	IIII
		AOAC 985.35	Flame atomic absorption spectrometry	III
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Manganese	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		AOAC 985.35	Flame atomic absorption spectrometry	IIII
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Phosphorus	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		AOAC 984.27	ICP emission spectroscopy	III
		AOAC 986.24	Spectrophotometry (molybdovanadate)	IIII
Infant Formula	Potassium	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		ISO 8070 IDF 119	Flame atomic absorption spectrophotometry	IIII
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Sodium	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		ISO 8070 IDF 119	Flame atomic absorption spectrophotometry	II III
		AOAC 984.27	ICP emission spectroscopy	III
Infant Formula	Zinc	AOAC 2015.06 / ISO 21424 IDF 243	ICP mass spectrometry	II
		AOAC 985.35	Flame atomic absorption spectrometry	IIII
		AOAC 984.27	ICP emission spectroscopy	III

Infant Formula	Vitamin K	AOAC 2015.09 / ISO 21446	HPLC fluorescence	II
Infant Formula	Folic acid	AOAC 2011.06	LC-MS/MS	II
		AOAC 992.05 / EN 14131	Microbioassay	III
		JAOAC Int. 2000:83; 1141-1148	Optical Biosensor Immunoassay	IV
		J Chromatogr. A., 928, 77-90, 2004	HPLC, incorporating immuneaffinity clean-up and conversion to 5-methyltetrahydrofolate	IV †

Table 2: Should be referred to CCNFSDU

Commodity	Provision	Method	Principle	Proposed Type
Infant Formula	Calcium	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Copper	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Iron	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Magnesium	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Manganese	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Phosphorus	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Potassium	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Sodium	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III
Infant Formula	Zinc	AOAC 2011.14 / ISO 15151 IDF 229	ICP emission spectroscopy	III

COMMITTEE ON SPICES AND CULINARY HERBS (CCSCH4)

Appendix II

Methods of analysis for provisions in the proposed draft standard for dried or dehydrated garlic

9. METHODS OF ANALYSIS AND SAMPLING

9.1 Methods of analysis¹

Parameter	Method	Principle	Type³
Moisture	AOAC 986.21	Distillation	I
Total Ash <u>on dry basis</u>	AOAC 986.21 and ISO 928	Calculation Distillation and Gravimetry	I
Acid Insoluble Ash <u>on dry basis</u>	AOAC 986.21 and ISO 930	Calculation Distillation and Gravimetry	I
Extraneous Matter	ISO 927	Visual Examination followed by Gravimetry	I
Foreign Matter	ISO 927	Visual Examination followed by Gravimetry	I
Insects//Insect Fragments	ISO 927	Visual Examination	IV
Live Insects	ISO 927	Visual Examination	IV
Live Insects	AOAC 960.51	Visual Examination	IV
<u>Mammalian Excreta</u>	Macroanalytical Procedure Manual, USFDA, Technical Bulletin V.39 B (For whole)	Visual Examination	IV
<u>Mammalian Excreta</u>	AOAC 993.27 (For Ground)	Enzymatic Detection Method	IV
Cold Water Soluble Matter <u>on dry basis</u>	ISO 941 and AOAC 986.21	Calculation Extraction followed by Gravimetry	I
Volatile Organic Sulfur Compounds Content <u>on a dry basis</u>	ISO 5567 and AOAC 986.21	Calculation Distillation followed by Titrimetry	IV
Mould damage	Method V-8 Spices, Condiments, Flavors and Crude Drugs (Macroanalytical Procedure Manual, FDA Technical Bulletin Number 5) http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm084394.htm#v-32	Visual Examination (For whole)	IV

¹ Latest edition or version of the approved method should be used

Methods of analysis for provision in the Proposed Draft Standard for Dried Oregano

9. METHODS OF ANALYSIS AND SAMPLING

³ According to the definition of “types of method of analysis” as per Codex Procedural Manual Section II.

9.1 Methods of analysis

Table 4. Methods of analysis¹

Parameter	Method	Principle	Type ⁴
Moisture	ISO 939	Distillation	I
Total ash on dry basis	ISO 939 and ISO 928	Calculation Gravimetry and distillation	I
Acid-insoluble ash on dry basis	ISO 930 and ISO 939	Calculation Gravimetry and distillation	I
Volatile oils on a dry basis	ISO 939 and ISO 6571	Calculation Distillation and Distillation	I
Extraneous vegetable matter	ISO 927	Visual examination followed by Gravimetry	I
Foreign matter	ISO 927	Visual examination followed by Gravimetry	I
Mammalian excreta	Macroanalytical Procedure Manual, USFDA, Technical Bulletin V.39 B (For whole)	Visual examination	IV
Other excreta	AOAC 993.27 (For Ground)	Visual examination	IV
Whole dead insect	ISO 927	Visual examination	IV
Whole dead insect	MPM V-8 Spices, Condiments, Flavours and Crude Drugs A. General methods for spices herbs and botanicals (V 32)	Visual examination	IV
Insect fragments	AOAC 969.44	Flotation method	IV
Insect fragments	AOAC 975.49	Flotation method	IV

¹ Latest edition or version of the approved method should be used

⁴According to the definition of “types of method of analysis” as per Codex Procedural Manual Section II.

Appendix III***Methods of analysis for acid value and free fatty acids for virgin palm oil and crude palm kernel oil⁵***

<i>Commodity Standard</i>	<i>Provision</i>	<i>Method</i>	<i>Principle</i>	<i>Type</i>
<u>Named Vegetable Oils</u>	<u>Acidity:</u> <u>acid value</u>	<u>ISO 660 / AOCS Cd 3d-63 /</u> <u>AOCS Ca 5a-40</u>	<u>Titrimetry</u>	<u>!</u>
	<u>free fatty acids</u>	<u>ISO 660 / AOCS Ca 5a-40</u>	<u>Titrimetry</u>	<u>!</u>

⁵REP19/FO, para. 67 (ii), Appendix IV, part A

Appendix IV

PART A – METHODS OF ANALYSIS BY COMMODITY CATEGORIES AND NAMES Recommended Revisions to CXS234

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Blend of evaporated skimmed milk and vegetable fat	Total fat	ISO 1737 IDF 13	Gravimetry (Röse-Gottlieb)	I
<u>Blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk solids-not-fat⁶ (MSNF)</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13</u>	<u>Calculation from total solids content and fat content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb)</u>	<u>I</u>
<u>Blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 8968-1 IDF 20-1</u>	<u>Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content, fat content and protein content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>AOAC 991.20</u>	<u>Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13 and AOAC 991.20</u>	<u>Calculation from total solids content, fat content and protein content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>IV</u>
Reduced fat blend of evaporated skimmed milk and vegetable fat	Total fat	ISO 1737 IDF 13	Gravimetry (Röse-Gottlieb)	I

⁶ Milk total solids and Milk solids-not-fat (MSNF) content include water of crystallization of lactose

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Reduced fat blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk solids-not-fat (MSNF)⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13</u>	<u>Calculation from total solids content and fat content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb)</u>	I
<u>Reduced fat blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 8968-1 IDF 20-1</u>	<u>Titrimetry (Kjeldahl)</u>	IV
<u>Reduced fat blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content, fat content and protein content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	IV
<u>Reduced fat blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>AOAC 991.20</u>	<u>Titrimetry (Kjeldahl)</u>	IV
<u>Reduced fat blend of evaporated skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13 and AOAC 991.20</u>	<u>Calculation from total solids content, fat content and protein content</u> <u>Gravimetry, drying at 102°C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	IV
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Total fat</u>	<u>ISO 1736 IDF 9</u>	<u>Gravimetry (Röse-Gottlieb)</u>	I
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Water⁷</u>	<u>ISO 5537 IDF 26</u>	<u>Gravimetry, drying at 87 °C</u>	I
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 8968-1 IDF 20-1</u>	<u>Titrimetry (Kjeldahl)</u>	IV
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 5537 IDF 26 and ISO 1736 IDF 9 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content fat content and protein content</u> <u>Gravimetry, drying at 87 °C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	IV
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Milk protein in MSNF⁶</u>	<u>AOAC 991.20</u>	<u>Titrimetry (Kjeldahl)</u>	IV

⁷ Water content excluding the crystallized water bound to lactose (generally known as “moisture content”)

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Blend of skimmed milk and vegetable fat in powdered form</u>	<u>Milk protein in MSNF6</u>	<u>ISO 5537 IDF 26 and ISO 1736 IDF 9 and AOAC 991.20</u>	<u>Calculation from total solids content fat content and protein content Gravimetry, drying at 87 °C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>IV</u>
Reduced fat blend of skimmed milk powder and vegetable fat in powdered form	Total fat	ISO 1736 IDF 9	Gravimetry (Röse-Gottlieb)	I
Reduced fat blend of skimmed milk powder and vegetable fat in powdered form	Water ²	ISO 5537 IDF 26	Gravimetry, drying at 87 °C	I
Reduced fat blend of skimmed milk powder and vegetable fat in powdered form	Milk protein in MSNF6	ISO 8968-1 IDF 20-1	Titrimetry (Kjeldahl)	IV
<u>Reduced fat blend of skimmed milk powder and vegetable fat in powdered form</u>	<u>Milk protein in MSNF6</u>	<u>ISO 5537 IDF 26 and ISO 1736 IDF 9 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content, fat content and protein content Gravimetry, drying at 87 °C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>IV</u>
Reduced fat blend of skimmed milk powder and vegetable fat in powdered form	Milk protein in MSNF6	AOAC 991.20	Titrimetry (Kjeldahl)	IV
<u>Reduced fat blend of skimmed milk powder and vegetable fat in powdered form</u>	<u>Milk protein in MSNF6</u>	<u>ISO 5537 IDF 26 and ISO 1736 IDF 9 and AOAC 991.20</u>	<u>Calculation from total solids content fat content and protein content Gravimetry, drying at 87 °C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Sucrose</u>	<u>ISO 2911 IDF 35</u>	<u>Polarimetry</u>	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Total fat</u>	<u>ISO 1737 IDF 13</u>	<u>Gravimetry (Röse-Gottlieb)</u>	<u>I</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk solids-not-fat⁶ (MSNF)</u>	<u>ISO 6734 IDF 15</u>	<u>Gravimetry, drying at 102 °C</u>	<u>IV</u>

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Blend of sweetened condensed skimmed milk and vegetable fat (for products sweetened with sucrose only)</u>	<u>Milk solids-not fat1 (MSNF)</u>	<u>ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35</u>	Calculation from total solids content, fat content and sucrose content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Polarimetry	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF6</u>	<u>ISO 8968-1 IDF 20-1</u>	Titrimetry (Kjeldahl)	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat (for products sweetened with sucrose only)</u>	<u>Milk protein in MSNF6</u>	<u>ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35 and ISO 8968-1 IDF 20-1</u>	Calculation from total solids content, fat content, sucrose content and protein content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Polarimetry and Titrimetry (Kjeldahl)	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF6</u>	<u>AOAC 991.20</u>	Titrimetry (Kjeldahl)	<u>IV</u>
<u>Blend of sweetened condensed skimmed milk and vegetable fat (for products sweetened with sucrose only)</u>	<u>Milk protein in MSNF6</u>	<u>ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35 and AOAC 991.20</u>	Calculation from total solids content, fat content, sucrose content and protein content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Polarimetry and Titrimetry (Kjeldahl)	<u>IV</u>
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk solids-not fat6 (MSNF)</u>	<u>ISO 6734 IDF 15</u>	<u>Gravimetry, drying at 102 °C</u>	<u>IV</u>
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Total fat</u>	<u>ISO 1737 IDF 13</u>	Gravimetry (Röse-Gottlieb)	<u>I</u>
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF6</u>	<u>ISO 8968-1 IDF 20-1</u>	Titrimetry (Kjeldahl)	<u>IV</u>

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat (for products sweetened with sucrose only)</u>	<u>Milk protein in MSNF⁶</u>	<u>ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content, fat content, sucrose content and protein content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Polarimetry and Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat</u>	<u>Milk protein in MSNF⁶</u>	<u>AOAC 991.20</u>	<u>Titrimetry (Kjeldahl)</u>	<u>IV</u>
<u>Reduced fat blend of sweetened condensed skimmed milk and vegetable fat (for products sweetened with sucrose only)</u>	<u>Milk protein in MSNF²</u>	<u>ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35 and AOAC 991.20</u>	<u>Calculation from total solids content, fat content, sugar content and protein content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Polarimetry and Titrimetry (Kjeldahl)</u>	<u>IV</u>
Butter	Copper	ISO 5738 IDF 76 AOAC 960.40	Photometry, diethyldithiocarbamate	II
Butter	Milk solids-not-fat ⁶ (MSNF)	ISO 3727-2 IDF 80-2	Gravimetry	I
Butter	Milkfat purity	ISO 17678 IDF 202	Calculation from determination of triglycerides by gas chromatography	I
Butter	Salt	ISO 1738 IDF 12/ AOAC 960.29	Titrimetry (Mohr: determination of chloride, expressed as sodium chloride)	III
Cheese	Citric acid	ISO/TS 2963 IDF/RM 34	Enzymatic method	IV
Cheese	Citric acid	AOAC 976.15	Photometry	II
Cheese	Milkfat	ISO 1735 IDF 5	Gravimetry (Schmid-Bondzynski-Ratzlaff)	I

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Cheese (and cheese rind)</u>	<u>Natamycin</u>	<u>ISO 9233-1 IDF 140-1</u>	<u>Molecular absorption spectrophotometry</u>	<u>III</u>
<u>Cheese (and cheese rind)</u>	<u>Natamycin</u>	<u>ISO 9233-2 IDF 140-2</u>	<u>HPLC-UV</u>	<u>II</u>
<u>Cheese</u>	<u>Propionic acid</u>	<u>ISO/TS 19046-1 IDF/RM 233-1</u>	<u>Gas Chromatography – FID</u>	<u>IV</u>
<u>Cheese</u>	<u>Propionic acid</u>	<u>ISO/TS 19046-2 IDF/RM 233-2</u>	<u>Ion exchange chromatography-UV</u>	<u>IV</u>
<u>Cheese</u>	<u>Sodium chloride</u>	<u>ISO 5943 IDF 88</u>	<u>Potentiometry (determination of chloride, expressed as sodium chloride)</u>	<u>II</u>
<u>Cheeses, individual</u>	<u>Dry matter (Total solids)⁶</u>	<u>ISO 5534 IDF 4</u>	<u>Gravimetry, drying at 102°C</u>	<u>I</u>
<u>Cheeses, individual</u>	<u>Milk fat in dry matter</u>	<u>ISO 1735 IDF 5</u>	<u>Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	<u>†</u>
<u>Cheeses, individual</u>	<u>Milkfat in dry matter</u>	<u>ISO 5534 IDF4 and ISO 1735 IDF 5</u>	<u>Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	<u>‡</u>
<u>Cheeses in brine</u>	<u>Milk fat in dry matter (FDM)</u>	<u>ISO 1735 IDF 5</u>	<u>Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	<u>†</u>
<u>Cheeses in brine</u>	<u>Milkfat in dry matter (FDM)</u>	<u>ISO 5534 IDF4 and ISO 1735 IDF 5</u>	<u>Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	<u>‡</u>
<u>Cottage cheese</u>	<u>Fat-free dry matter</u>	<u>ISO 5534 IDF 4 and ISO 1735 IDF 5</u>	<u>Calculation from dry matter content and fat content Gravimetry, drying at 102 °C and Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	<u>‡</u>
<u>Cottage cheese</u>	<u>Milk fat in dry matter</u>	<u>ISO 8262-3 IDF 124-3</u>	<u>Gravimetry (Weibull-Berntrop)</u>	<u>I</u>
<u>Cottage cheese (for samples containing lactose up to 5%)</u>	<u>Milkfat</u>	<u>ISO 1735 IDF 5</u>	<u>Gravimetry ((Schmid-Bondzynski-Ratzlaff))</u>	<u>‡</u>

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
<u>Cottage cheese (for samples containing lactose over 5% or with non-dairy ingredients)</u>	<u>Milkfat</u>	<u>ISO 8262-3 IDF 124-3</u>	<u>Gravimetry (Weibull-Berntrop)</u>	
Cottage cheese	Milk fat	ISO 1735 IDF 5 ISO 8262-3 IDF 124-3	Calculation from dry matter and fat content Gravimetry (Schmid-Bondzynski-Ratzlaff) (for samples containing lactose up to 5%) Gravimetry (Weibull-Berntrop) (for samples containing lactose over 5%)	† †
<u>Cottage cheese (for samples containing lactose up to 5%)</u>	<u>Milkfat in dry matter</u>	<u>ISO 5534 IDF4 and ISO 1735 IDF 5</u>	<u>Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)</u>	
<u>Cottage cheese (for samples containing lactose over 5% or with non-dairy ingredients)</u>	<u>Milkfat in dry matter</u>	<u>ISO 5534 IDF4 and ISO 8262-3 IDF 124-3</u>	<u>Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Weibull-Berntrop)</u>	
Cheese, Unripened Including Fresh Cheese	Milk Protein	ISO 8968-1 IDF 20-1	Titrimetry, Kjeldahl	
Cream and Prepared Creams	Milk protein	ISO 8968-1 IDF 20-1	Titrimetry (Kjeldahl)	
Cream	Milkfat	ISO 2450 IDF 16	Gravimetry (Röse-Gottlieb)	
Cream	Solids6	ISO 6731 IDF 21	Gravimetry (drying at 102°C)	
Creams Lowered in Milkfat Content	Milkfat	ISO 2450 IDF 16 / AOAC 995.19	Gravimetry (Röse-Gottlieb)	
Cream cheese	Dry matter	ISO 5534 IDF 4	Gravimetry drying at 102 °C	
Cream cheese	Moisture on fat free basis	ISO 5534 IDF 4 and ISO 1735 IDF 5	Calculation from fat content and moisture content Gravimetry drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)	
Dairy permeate powders	Milkfat	ISO1736 IDF9	Gravimetry(Röse-Gottlieb)	
Dairy permeate powders	Nitrogen	ISO8968-1 IDF20-1	Titrimetry (Kjeldahl)	

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Dairy permeate powders	Moisture ⁸	ISO5537 IDF26	Gravimetry, drying at 87°C	I
Edible casein products (caseins obtained by rennet precipitation and of caseinates, with the exception of ammonium caseinate)	Ash (including P ₂ O ₅)	ISO 5545 IDF 90	Gravimetry, ashing at 825 °C	I
Edible casein products (acid caseins, of ammonium caseinates, of their mixtures with rennet casein and with caseinates, and of caseins of unknown type)	Ash (including P ₂ O ₅)	ISO 5544 IDF 89	Gravimetry, ashing at 825 °C	I
Edible casein products	Copper	ISO 5738 IDF 76	Colorimetry (diethyldiethiocarbamate)	III
Edible casein products	Lead	ISO/TS 6733 IDF/RM 133	Spectrophotometry (1,5-diphenylthiocarbazone)	IV
Edible casein products	Sediment (scorched particles)	ISO 5739 IDF 107	Visual comparison with standard disks, after filtration	IV
Edible casein products	Water ⁷	ISO 5550 IDF 78	Gravimetry, drying at 102 °C	I
Edible casein products	Milk Protein (total N x 6.38 in dry matter)	ISO 8968-1 IDF 20-1	Titrimetry, Kjeldahl	†
<u>Edible casein products</u>	<u>Milk Protein (total N x 6.38) in dry matter</u>	<u>ISO 5550 IDF 78 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from dry matter content and protein content Gravimetry, drying at 102 °C and Titrimetry (Kjeldahl)</u>	<u>‡</u>
Emmental	Propionic acid	ISO/TS 19046-1 IDF/RM 233-1	Gas Chromatography -FID	IV
Emmental	Propionic acid	ISO/TS 19046-2 IDF/RM 233-2	Ion exchange chromatography - UV	IV
Evaporated milks	Milkfat	ISO 1737 IDF 13	Gravimetry (Röse-Gottlieb)	I
Evaporated milks	Milk Protein in MSNF⁶	ISO 8968-1 IDF 20-1	Titrimetry (Kjeldahl)	†
<u>Evaporated milks</u>	<u>Milk Protein in MSNF⁶</u>	<u>ISO 6731 IDF 21 and ISO 1737 IDF 13 and ISO 8968-1 IDF 20-1</u>	<u>Calculation from total solids content fat content and protein content Gravimetry, drying at 102 °C and Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)</u>	<u>‡</u>

⁸ Moisture content excluding the water of crystallization of lactose

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Evaporated milks	Solids, total ⁶	ISO 6731 IDF 21	Gravimetry, drying at 102 °C	I
Fermented milks	Colony-forming units of yeasts and/or moulds	ISO 6611 IDF 94	Colony-count at 25 °C	IV
Fermented milks - Yoghurt and yoghurt products	<u>Quantification of Lactobacillus delbrueckii subsp bulgaricus & Streptococcus thermophilus</u>	ISO 7889 IDF 117	Colony count at 37°C	I
Fermented milks - Yoghurt and yoghurt products	<u>Identification of Lactobacillus delbrueckii subsp bulgaricus & Streptococcus thermophilus</u>	ISO 9232 IDF 146	Test for strain identification	I
Milk powders and cream powders	Acidity, titratable	ISO 6091 IDF 86	Titrimetry, titration to pH 8.4	I
Milk powders and cream powders	Milkfat	ISO 1736 IDF 9	Gravimetry (Röse-Gottlieb)	I
Milk powders and cream powders	Water ⁷	ISO 5537 IDF 26	Gravimetry, drying at 87°C	I
Milkfat products	Fatty acids, free (expressed as oleic acid)	ISO 1740 IDF 6	Titrimetry	I
Milk fat products	Vegetable fat (sterols)	ISO 12078 IDF 159	Gas chromatography	II
		ISO 18252 IDF 200	Gas chromatography	III
Milkfat products	Milkfat purity	ISO 17678 IDF 202	Calculation from determination of triglycerides by gas chromatography FID	I
Milkfat products (anhydrous milkfat)	Peroxide value	AOAC 965.33	Titrimetry	↓
Milkfat Products (anhydrous milkfat)	Peroxide value (expressed as meq. of oxygen/kg fat)	ISO 3976 IDF 74	Photometry	I
Milkfat products	Water ⁷	ISO 5536 IDF 23	Titrimetry (Karl Fischer)	II
Mozzarella	Milkfat in dry matter – with high moisture	ISO 1735 IDF 5	Gravimetry after solvent extraction	↓
Mozzarella	Milkfat in dry matter – with high moisture	ISO 5534 IDF4 and ISO 1735 IDF 5	Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)	I

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Mozzarella	Milkfat in dry matter – with low moisture	ISO 5534 IDF4 and ISO 1735 IDF 5	Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)	I
Sweetened condensed milk	Milkfat	ISO 1737 IDF 13	Gravimetry (Röse-Gottlieb)	I
Sweetened Condensed Milks	Milk Protein in MNSF6	ISO 8968-1 IDF 20-1	Titrimetry (Kjeldahl)	‡
Sweetened Condensed Milks (for products sweetened with sucrose only)	Milk Protein in MSNF6	ISO 6734 IDF 15 and ISO 1737 IDF 13 and ISO 2911 IDF 35 and ISO 8968-1 IDF 20-1	Calculation from total solids content, fat content, sucrose and protein content Gravimetry, drying at 102°C and Polarimetry Gravimetry (Röse-Gottlieb) and Titrimetry (Kjeldahl)	I
Sweetened Condensed Milks	Solids6	ISO 6734 IDF 15	Gravimetry, drying at 102 °C	I
Whey powders	Copper	AOAC 985.35	Atomic absorption spectrophotometry	‡
Whey powders	Copper	ISO 5738 IDF 76	Photometry (diethyldithiocarbamate)	‡‡
Whey cheeses by coagulation	Milkfat	ISO 1735 IDF 5	Gravimetry (Schmid-Bondzynski-Ratzlaff)	I
Whey cheeses by coagulation	Milkfat in dry matter	ISO 5534 IDF 4 and ISO 1735 IDF 5	Calculation from dry matter content and fat content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)	I
Whey powders	Ash	ISO 5545 IDF 90	Gravimetry, ashing at 825°C	IV
Whey Powders	Lactose	ISO 5765-1/2 IDF 79-1/2	Enzymatic method: Part 1 - Glucose moiety or Part 2 - Galactose moiety	II
Whey powders	Milkfat	ISO 1736 IDF 9	Gravimetry (Röse-Gottlieb)	I
Whey powders	Water ⁷	ISO 5537 IDF 26	Gravimetry, drying at 87°C	I
Methods Below appeared in MA40_03_Add1 App II				
Cottage cheese (for samples containing lactose up to 5%)	Milkfat in dry matter	ISO 5534 IDF4 and ISO 1735 IDF 5	Calculation from dry matter content Gravimetry, drying at 102°C and Gravimetry (Schmid-Bondzynski-Ratzlaff)	I

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Cottage cheese (for samples containing lactose over 5% or with non-dairy ingredients)	Milkfat in dry matter	ISO 5534 IDF4 and ISO 8262-3 IDF 124-3	Calculation from dry matter content Gravimetry, drying at 102°C and Gravimetry (Weibull-Berntrop)	I
Edible casein products	Lead	NMKL 139 (Codex general method) AOAC 999.11	Atomic absorption spectrophotometry	IV
Edible casein products	Lead	NMKL 161 / AOAC 999.10	Atomic absorption spectrophotometry	IV
Butter	Lead	AOAC 972.25 (Codex general method)	Atomic absorption spectrophotometry	IV
Milk fat products	Vegetable fat (sterols)	ISO 12078 IDF 159	Gas chromatography	II
		ISO 18252 IDF 200	Gas chromatography	III
Milkfat products	Milkfat purity	ISO 17678 IDF 202	Calculation from determination of triglycerides by gas chromatography - FID	I
Butter	Vegetable fat (sterols)	ISO 12078 IDF 159	Gas chromatography	II
Butter	Vegetable fat (sterols)	ISO 18252 IDF 200	Gas chromatography	III
Butter	Milkfat purity	ISO 17678 IDF 202	Calculation from determination of triglycerides by gas chromatography - FID	I
Dairy fat spreads	Vegetable fat (sterols)	ISO 12078 IDF 159	Gas chromatography	II
Dairy fat spreads	Vegetable fat (sterols)	ISO 18252 IDF 200	Gas chromatography	III
Dairy fat spreads	Milkfat purity	ISO 17678 IDF 202	Calculation from determination of triglycerides by gas chromatography - FID	I
Creams, Whipped Creams and Fermented Creams	Milk solids-not-fat (MSNF)	ISO 3727-2 IDF 80-2 AOAC 920.116	Gravimetry	I
Edible casein products	Copper	AOAC 2015.06 / ISO 21424 IDF 243	Atomic absorption spectrophotometry ICP-MS	II

Edible casein products	Copper	AOAC 985.35	Atomic absorption spectrophotometry ICP-MS	III
Edible casein products	Lead	AOAC 972.25 (Codex general method)	Atomic absorption spectrophotometry	III
Edible casein products	Lead	AOAC 982.23 (Codex general method)	Anodic stripping voltametry	III
Fermented milks	Milkfat	ISO 1211 IDF 1 / AOAC 989.05	Gravimetry (Röse-Gottlieb)	I
<u>Milkfat Products</u>	<u>Copper</u>	<u>ISO 5738 IDF 76</u>	<u>Photometry, diethyldithiocarbamate</u>	<u>II</u>
<u>Milkfat Products</u>	<u>Copper</u>	<u>AOAC 960.40</u>	<u>Photometry, diethyldithiocarbamate</u>	<u>IV</u>
<u>Whey powders</u>	<u>Lead</u>	<u>AOAC 972.25 (Codex general method)</u>	<u>Atomic absorption spectrophotometry</u>	<u>II</u>

Further Action/Consideration Necessary

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Milk products is not a Codex Standard, unclear why it is listed as commodity. Ask for information from CCMMP on why this was established. CCMMP is no longer active, but additional consultation is needed.				
Milk products	Iron	ISO 6732 IDF 103	Photometry (bathophenanthroline)	IV
Milk products (products not completely soluble in ammonia)	Milkfat	ISO 8262-3 IDF 124-3	Gravimetry (Weibull-Berntrop)	I
Milk products	Iron	NMKL 139 AOAC 999.11 (Codex general method)	Atomic absorption spectrophotometry	II
Milk products	Iron	AOAC 984.27	Inductively Coupled Plasma optical emission spectrophotometry	III
Will need to endorse new method or establish criteria for following				
Edible casein	Iron			
Whey powders	Lead	AOAC 972.25 (Codex general method)	Atomic absorption spectrophotometry	II
Edible casein products	Lead	AOAC 982.23 (Codex general method)	Anodic stripping voltametry	III
Butter	Lead	AOAC 972.25 (Codex general method)	Atomic absorption spectrophotometry	IV
Further validation data on a replacement method will be presented at future CCMAS for consideration on method replacement.				
Blend of skimmed milk and vegetable fat in powdered form	Water ¹	ISO 5537 IDF 26	Gravimetry, drying at 87 °C	I
Reduced fat blend of skimmed milk powder and vegetable fat in powdered form	Water ⁷	ISO 5537 IDF 26	Gravimetry, drying at 87 °C	I
Two Type I methods for the same commodity and provision. The methods are not identical, so one will need to be removed. Reviewer seemed to indicate the AOAC was more widely applicable. ISO IDF was validated in milk fat products. Both AOAC and IDF recommend removal of AOAC 965.33. PWG could not reach an agreement on the method which should be removed.				
Milkfat Products (anhydrous milkfat)	Peroxide value (expressed as meq. of oxygen/kg fat)	ISO 3976 IDF 74	Photometry	I
Milkfat products (anhydrous milkfat)	Peroxide value	AOAC 965.33	Titrimetry	I

¹ Water content excluding the crystallized water bound to lactose (generally known as "moisture content")

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
The method does not identify Lactobacillus and is Titled as Presumptive. CCMAS requires guidance from commodity or other committee.				
Fermented milks	[Presumptive] Lactobacillus acidophilus	ISO 20128 IDF 192	Colony count at 37 °C	I
Methods Below have not yet been reviewed by Dairy Package eWG				
Milk and Milk Products	Melamine	ISO/TS 15495 IDF/RM 230	LC-MS/MS	IV
Butter	Milkfat	ISO 17189 IDF 194	Gravimetry Direct determination of fat using solvent extraction	I
Butter	Salt	ISO 15648 IDF 179	Potentiometry (determination of chloride, expressed as sodium chloride)	II
Butter	Water ⁷	ISO 37271-1 IDF 80-1	Gravimetry	I
Dairy fat spreads	Total fat	ISO 17189 IDF 194	Gravimetry Direct determination of fat using solvent extraction	I
Dairy permeate powders	Ash	NMKL 173	Gravimetry (ashing at 550 °C)	IV
Edible casein products	Acids, free	ISO 5547 IDF 91	Titrimetry (aqueous extract)	IV
Edible casein products	Lactose	ISO 5548 IDF 106	Photometry (phenol and H ₂ SO ₄)	IV
Edible casein products	Milkfat	ISO 5543 IDF 127	Gravimetry (Schmid-Bondzynski-Ratslaff)	I
Edible casein products	pH	ISO 5546 IDF 115	Electrometry	IV
Emmental	Calcium ≥ 800mg/100g	ISO 8070 IDF 119	Flame atomic absorption	IV
Fermented milks	Dry matter (total solids) ⁶	ISO 13580 IDF 151	Gravimetry (drying at 102 °C)	I
Fermented milks	Total acidity expressed as percentage of lactic acid	ISO/TS 11869 IDF/RM 150	Potentiometry, titration to pH 8.30	I
Fermented milks	Microorganisms constituting the starter culture	ISO 27205 IDF 149 (Annex A)	Colony count at 25 °C, 30 °C, 37 °C and 45 °C according to the starter organism in question	IV

Commodity	Provision	Method	Principle	Type
Milk and Milk Products				
Milk powders and cream powders	Scorched particles	ISO 5739 IDF 107	Visual comparison with standard disks, after filtration	IV
Milk powders and cream powders	Solubility Index	ISO 8156 IDF 129	Centrifugation	I
Whey cheeses by concentration	Milk fat	ISO 1854 IDF 59	Gravimetry (Röse Gottlieb)	I
Whey cheeses by concentration	Milk fat in dry matter	ISO 1854 IDF 59 and ISO 2920 IDF 58	Calculation from fat content and dry matter content Gravimetry (Röse Gottlieb) Gravimetry, drying at 88 C	I
Whey powders	Moisture, "Free"	ISO 2920 IDF 58	Gravimetry (drying at 88°C ±2°C)	IV