APPENDIX II

Part 1. METHODS OF ANALYSIS FOR ADOPTION AND REVOCATION BY CAC49

(For inclusion in CXS 234 and revocation from CXS 234)

1.1 CEREALS, PULSES AND LEGUMES AND DERIVED PRODUCTS

1.2 CODEX COMMITTEE ON CONTAMINANTS IN FOOD

1.3 CODEX COMMITTEE ON FATS AND OILS

1.4 CODEX COMMITTEE ON SPICES AND CULINARY HERBS

1.5 FAO/WHO COORDINATING COMMITTEE FOR NEAR EAST

1.6 FATS AND OILS

1.7 FISH AND FISHERY PRODUCTS

1.8 MISCELLANEOUS PRODUCTS

1.9 SUGARS AND HONEY

Part 2. METHODS OF ANALYSIS FOR REVOCATION BY CAC49

(For revocation from the respective standard as indicated)

Part 3. SAMPLING PLANS FOR ADOPTION BY CAC49

(For inclusion in the respective standard(s) as indicated)

3.1 CODEX COMMITTEE ON CONTAMINANTS IN FOOD

3.2 FAO/WHO COORDINATING COMMITTEE FOR ASIA

Part 4. METHODS OF ANALYSIS WHICH REMAIN UNCHANGED IN CXS 234 AS A RESULT OF DECISIONS BY CCMAS45

(For information)

4.1 CEREALS, PULSES AND LEGUMES AND DERIVED PRODUCTS

4.2 FISH AND FISHERY PRODUCTS

4.3 SUGARS AND HONEY

Part 5. METHODS OF ANALYSIS WHICH REMAIN UNCHANGED IN STANDARDS OTHER THAN CXS 234 AS A RESULT OF DECISIONS BY CCMAS45

(For information)

Part 1

METHODS OF ANALYSIS FOR ADOPTION AND REVOCATION BY CAC49 (For inclusion in CXS 234 and revocation from CXS 234)

Notes:

1. Methods and performance criteria for inclusion and/or amendment in CXS 234-1999: changes indicated in ~~strikethrough~~, or **bold** and underlined font.
2. Methods for revocation in CXS 234-1999: ~~strikethroughs~~ are indicated in red.
3. The reference to Appendices VI and VIII in this document relate to the relevant appendices in CXS 234-1999.

1.1 CEREALS, PULSES AND LEGUMES AND DERIVED PRODUCTS

Cereals, pulses and legumes and derived products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Maize (corn)	**Broken kernels**	**ISO 19942**	**Sieving, visual examination, gravimetry**	**I**
Sorghum grains	**Fibre, crude**	**ICC 113 / ISO 6541**	**Gravimetry (incineration at 550°C)**	**I**
Rice	**Head rice**	**ISO 7301**	**Visual examination, micrometry, gravimetry**	**I**
Rice	**Large broken kernel**	**ISO 7301**	**Visual examination, micrometry, gravimetry**	**I**
Rice	**Medium broken kernel**	**ISO 7301**	**Visual examination, micrometry, gravimetry**	**I**
Rice	**Small broken kernel**	**ISO 7301**	**Visual examination, micrometry, sieving, gravimetry**	**I**
Rice	**Chips**	**ISO 7301**	**Sieving, gravimetry**	**I**
Rice	**Heat-damaged kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Damaged kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Immature kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Chalky kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Red kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Red-streaked kernels**	**ISO 7301**	**Visual examination, gravimetry**	**I**

Cereals, pulses and legumes and derived products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Rice	**Pecks**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Rice	**Maximum recommended levels of other types of rice**	**ISO 7301**	**Visual examination, gravimetry**	**I**
Wheat and durum wheat	**Minimum test weight**	**ISO 7971-1**	**Gravimetry**	**I**
Wheat	**Shrunken (shrivelled) and broken kernels**	**ISO 7970**	**Sieving, visual examination and gravimetry**	**I**
Durum wheat	**Shrunken (shrivelled) and broken kernels**	**ISO 11051**	**Sieving, visual examination and gravimetry**	**I**
Wheat	**Edible grains other than wheat and durum wheat**	**ISO 7970**	**Sieving and gravimetry**	**I**
Wheat	**Damaged kernels**	**ISO 7970**	**Sieving and gravimetry**	**I**
Durum wheat	**Edible grains other than wheat and durum wheat**	**ISO 11051**	**Sieving and gravimetry**	**I**
Durum wheat	**Damaged kernels**	**ISO 11051**	**Sieving and gravimetry**	**I**
Durum wheat	**Insect bored kernels**	**ISO 11051**	**Visual examination and gravimetry**	**I**
Oats	**Minimum test weight**	**ISO 7971-1**	**Gravimetry**	**I**
Degermed maize (corn) meal and maize (corn) grits	~~**Fat, crude**~~ **Crude fat**	AOAC 945.38F and 920.39C and ICC 110/1	Calculation from moisture and Gravimetry ~~**(ether extraction)**~~	I
Peanuts	**Kernel defects: Damaged kernels**	**FDA Method MPM: V.10 (v89)**	**Visual examination-gravimetryVisual examination and gravimetry**	**I**

1.2 CODEX COMMITTEE ON CONTAMINANTS IN FOOD

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

Commodity	Provision	ML (µg/kg)	Method performance criteria					Example of methods that meet the criteria
			Minimal applicable range (µg/kg)	Limit of detection (LOD) (µg/kg)	Limit of quantification (LOQ) (µg/kg)	Precision (RSD_R) (%) no more than	Recovery (%)	
Chilli pepper, nutmeg	AFT B1+B2+G1+G2	20						EN 17424 EN 17641
	AFB1	-	2.8 – 7.2	≤ 1	≤ 2	≤ 44	40 – 120	
	AFB2	-	2.8 – 7.2	≤ 1	≤ 2	≤ 44	40 – 120	
	AFG1	-	2.8 – 7.2	≤ 1	≤ 2	≤ 44	40 – 120	
	AFG2	-	2.8 – 7.2	≤ 1	≤ 2	≤ 44	40 – 120	
Chilli pepper, paprika, nutmeg	OTA	20	11.2 – 28.8	≤ 4	≤ 8	≤ 44	60 – 115	EN 17250 EN 17641

Method performance criteria for total aflatoxins in certain food matrices

Commodity	Provision	ML (µg/kg)	Method performance criteria					Example of methods that meet the criteria
			Minimal applicable range (µg/kg)	Limit of detection (LOD) (µg/kg)	Limit of quantification (LOQ) (µg/kg)	Precision (RSD_R) (%) no more than	Recovery (%)	
Peanuts intended for further processing	AFT B1+B2+G1+G2	15						EN 14123 EN 17641
	AFB1	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
	AFB2	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
	AFG1	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
	AFG2	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
Tree nuts destined	AFT B1+B2+G1+G2	15						EN 14123

Commodity	Provision	ML (µg/kg)	Method performance criteria					Example of methods that meet the criteria
			Minimal applicable range (µg/kg)	Limit of detection (LOD) (µg/kg)	Limit of quantification (LOQ) (µg/kg)	Precision (RSD_R) (%) no more than	Recovery (%)	
for further processing: almonds, hazelnuts, pistachios, and shelled Brazil nuts	AFB1	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	EN 17641
	AFB2	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
	AFG1	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
	AFG2	-	2.1 - 5.4	≤ 0.75	≤ 1.5	≤ 44	40 - 120	
Ready-to-eat tree nuts: almonds, hazelnuts, pistachios and shelled Brazil nuts	AFT B1+B2+G1+G2	10						EN 17641
	AFB1	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFB2	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFG1	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFG2	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
Dried figs	AFT B1+B2+G1+G2	10						EN 17641
	AFB1	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFB2	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFG1	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	
	AFG2	-	1.4 - 3.6	≤ 0.5	≤ 1.0	≤ 44	40 - 120	

1.3 CODEX COMMITTEE ON FATS AND OILS

Fats and oils				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Crude rice bran oil	Gamma oryzanol	See Appendix **	Spectrophotometry-UV	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 nm, 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 $E^{1\%}_{1\ cm} = 359$

1.4 CODEX COMMITTEE ON SPICES AND CULINARY HERBS

Spices and culinary herbs				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Small cardamom	Light seeds	ISO 927*	Visual examination followed by gravimetry	I
Turmeric	Colouring power expressed as curcuminoids	ISO 5566	Spectrophotometry-UV-Vis	I
Dried or dehydrated chilli pepper and paprika	Pungency, Scoville Heat Units	ASTA 21.3 / AOAC 995.03	HPLC FLD/UV-Vis and calculation	I
~~Dried or dehydrated chilli pepper and paprika~~	~~Pungency, Scoville Heat Units~~	~~ISO 3513~~	~~Sensory evaluation~~	~~I~~
Cloves (as whole)	Mould visible	ISO 927	Visual examination followed by gravimetry	I
~~Cloves~~	~~Mould visible (for whole)~~	~~Method V-8 Spices, Condiments, Flavors and Crude Drugs (Macroanalytical Procedure Manual, FDA Technical Bulletin Number 5) https://www.fda.gov/food/laboratory-methods-food/mpm-v-8-spices-condiments-flavors-and-crude-drugs#v32~~	~~Visual examination followed by gravimetry~~	~~IV~~
Vanilla	Moisture	ISO 5565-2	Distillation	I
Vanilla	Extraneous matter	ISO 927*	Visual examination followed by gravimetry	I
Vanilla	Live Insect	ISO 927*	Visual examination (by count)	I
Vanilla	Vanillin content on wet basis	ISO 5565-2	HPLC-UV	II
Large cardamom	Moisture	ISO 939	Distillation	I
Large cardamom	Volatile oil (on dry basis)	ISO 939 and ISO 6571	Calculation (from moisture and volatile Oils), distillation and distillation	I

Spices and culinary herbs				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Large cardamom	Total ash (On dry basis)	ISO 939 and ISO 928	Calculation (from moisture and ash) (incineration at 550ºC), distillation and gravimetry	I
Large cardamom	Acid insoluble ash (on dry basis)	ISO 939 and ISO 930	Calculation (from moisture and ash) (incineration at 550ºC), distillation and gravimetry	I
Large cardamom	Extraneous matter	ISO 927	Visual examination followed by gravimetry	I
Large cardamom	Foreign matter	ISO 927	Visual examination followed by gravimetry	I
Large cardamom (for whole)	Whole insect live/dead	ISO 927	Visual examination (counting)	I
Large cardamom (for powdered/pieces)	Whole insect live/dead	AOAC 975.49	Flotation	I
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
Large cardamom	Visible mould / Mouldy Material	ISO 927	Visual examination followed by gravimetry	I
Large cardamom	Insect defiled	ISO 927	Visual examination followed by gravimetry	I
Large cardamom	Empty, malformed and split capsules	ISO 10622	Visual examination (counting)	I
Large cardamom	Immature and shrivelled capsules / seed	ISO 927	Visual examination followed by gravimetry	I

Spices and culinary herbs				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Large cardamom	Light seeds	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Moisture	ISO 939	Distillation	I
Dried or dehydrated coriander	Total ash on dry basis	ISO 939 and ISO 928	Calculation from moisture and ash (incineration at 550ºC), distillation and gravimetry	I
Dried or dehydrated coriander	Acid insoluble ash (dry basis)	ISO 939 and ISO 930	Calculation from moisture and ash (incineration at 550ºC), distillation and gravimetry	I
Dried or dehydrated coriander	Volatile oils (dry basis)	ISO 939 and ISO 6571	Calculation from moisture and volatile oils, distillation and distillation	I
Dried or dehydrated coriander	Extraneous matter	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Foreign matter	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Split fruits, damaged or discoloured fruits	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Mouldy material / mould visible	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Insect defiled	ISO 927	Visual examination followed by gravimetry	I
Dried or dehydrated coriander	Live insect	ISO 927	Visual examination (counting)	I
Dried or dehydrated coriander	Dead insect	ISO 927	Visual examination (counting)	I

Spices and culinary herbs				
Commodity	**Provision**	**Method**	**Principle**	**Type**
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**

*** 100 g test portion size**

1.5 FAO/WHO COORDINATING COMMITTEE FOR NEAR EAST

Miscellaneous products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Maamoul	**Extraneous matter**	**AOAC 970.70**	**Microscopy**	**I**
Maamoul	**pH**	**ISO 1842**	**Potentiometry**	**IV**
Maamoul	**pH**	**AACC 02-52.01 / AOAC 943.02**	**Potentiometry**	**II**
Maamoul	**Water activity**	**ISO 18787**	**Electrometry**	**II**
Maamoul	**Moisture**	**NMKL 206**	**Gravimetry (drying at 102 to 105 °C)**	**I**

1.6 FATS AND OILS

Fats and oils				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Edible fats ~~Fats~~ and oils not covered by individual standards	Acidity: acid value	ISO 660 / AOCS Cd 3d-63	Titrimetry	I
Edible fats ~~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
Edible fats ~~Fats~~ and oils not covered by individual standards	Peroxide value	AOCS Cd 8b-90 / ISO 3960 / NMKL 158	Titrimetry **~~(colorimetric)~~**	I
Olive oils and olive pomace oils	Peroxide value	ISO 3960 / AOCS Cd 8b-90 / NMKL 158 / **COI/T.20/Doc.No.38**	Titrimetry	I
Named animal fats	**Fatty acid composition**	**AOCS Ce 2-66 and AOCS Ce 1j-07**	**Preparation of methyl esters and GC-FID**	**II**
Named animal fats	Fatty acid composition	ISO 12966-2 and ISO 12966-4	Preparation of methyl esters and **~~gas chromatography~~ GC-FID**	III

Fats and oils				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Fat spreads and blended spreads	**Milk fat content[1]**	**AOAC 2012.13 / ISO 16958 | IDF 231**	**GC-FID and calculation***	**I**
Fat spreads and blended spreads	**Salt content**	**ISO 15648 | IDF 179**	**Titrimetry (Potentiometry)**	**II**
Fat spreads and blended spreads	**Salt content**	**AOAC 2016.03 / ISO 21422 | IDF 242**	**Titrimetry (Potentiometry)**	**III**
Fat spreads and blended spreads	**Vitamin A**	**EN 12823**	**HPLC-UV**	**II**
Fat spreads and blended spreads	**Vitamin D**	**EN 12821 / NMKL 167**	**HPLC-UV**	**II**
Fat spreads and blended spreads	**Vitamin E**	**ISO 9936**	**HPLC-UV**	**III**
Fat spreads and blended spreads	**Vitamin E**	**EN 12822**	**HPLC- UV**	**II**
~~**Named vegetable oils**~~	~~**Fatty acid composition**~~	~~**ISO 12966-2 and ISO 12966-4 / AOCS Ce 2-66 and AOCS Ce 1h-05**~~	~~**Gas chromatography of methyl esters**~~	~~**II**~~
Named vegetable oils	**Fatty acid composition**	**AOCS Ce 2-66 and AOCS Ce 1h-05**	**Preparation of methyl esters and GC-FID**	**II**
Named vegetable oils	**Fatty acid composition**	**ISO 12966-2 and ISO 12966-4**	**Preparation of methyl esters and GC-FID**	**III**
Fats and oils (all)	Soap content	ISO 10539 / AOCS Cc 17-95	Titrimetry (~~**colorimetric**~~ **alkalimetry**)	I

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

1.7 FISH AND FISHERY PRODUCTS

Fish and fishery products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
~~Crackers from marine and freshwater fish, crustacean and molluscan shellfish~~	~~Crude protein~~	~~Described in the standard~~		
~~Crackers from marine and freshwater fish, crustacean and molluscan shellfish~~	~~Moisture~~	~~Described in the standard~~		
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Moisture	AOAC 950.46B (air drying)	Gravimetry	I
~~Raw bivalve molluscs (shucked)~~	~~Drained weight~~	~~Described in the standard~~		
Raw bivalve molluscs (shucked)	Drained weight	AOAC 953.11	Gravimetry	I
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 and see Appendix VI	Calculation from Titrimetry (Kjeldahl digestion) and gravimetry	I
~~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~~
~~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~~

Fish and fishery products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
~~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~~
~~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~~
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%~~

APPENDIX VI

Other methods

(1) Chemical analysis method (nitrogen factor end-product method)

Appropriate in cases where there is reason to doubt the composition of the fish core (i.e. appears to contain non-fish ingredients). Except for fully cooked products, this method requires confirmation with the AOAC Method 996.15, or with Method #2 (Determination of percentage fish content) in conjunction with investigation at the processing plant when determining product compliance with the labelling provisions in CXS 166-1989. This method should trigger in-factory investigation (e.g. raw ingredient recipe checks) when suspect products are identified.

The percentage fish content, corrected for the non-fish flesh nitrogen contributed by the carbohydrate coating, is calculated as follows.

$$\% \text{ Fish } \underline{\textbf{content}} = \frac{(\% \text{ total nitrogen} - \% \text{ nonfish flesh nitrogen})}{\text{N factor}^*} \times 100$$

*appropriate N (nitrogen) factor

The non-fish flesh nitrogen is calculated as follows:

% non-fish flesh nitrogen = % carbohydrate X 0.02

Where the carbohydrate is calculated by difference:

% carbohydrate = 100 – (%water + % fat + % protein + % ash)

APPENDIX VIII

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 SALTED 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%**

Table 5. Method performance criteria for sodium chloride and for salt determined as chloride expressed as sodium chloride

Commodity	Provision	ML (%)	Method performance criteria					Examples of methods that meet the criteria	Principle
			Minimal applicable range (%)	Limit of detection (LOD) (%)	Limit of quantification (LOQ) (%)	Precision (RSD_R) (%) no more than	Recovery (%)		
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 (NaCl) From 12 (Cl^-)	18–22 11–13	2.0 1.2	4.0 2.4	~~5.1~~ **≤ 5** ~~5.5~~ **≤ 6**	98–102 98–102	NMKL 178 AOAC 971.27 AOAC 976.18 ~~AOAC 937.19~~	Titrimetry (potentiometric) 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~~ **1-22** ~~0.5–13~~ **1-13**	0.1 0.06	0.2 0.12	**≤** ~~8.0~~ ~~8.6~~ **≤ 9**	97–103	NMKL 178 AOAC 971.27 AOAC 976.18 ~~AOAC 937.09~~	Titrimetry (potentiometric) Titrimetry (potentiometric) Titrimetry (potentiometric) ~~Titrimetry~~
Salted fish and dried	Sodium chloride and	From 12	11–13	1.2	2.4	~~5.5~~ **≤ 6**	98–102	NMKL 178	Titrimetry (potentiometric)

Commodity	Provision	ML (%)	Method performance criteria					Examples of methods that meet the criteria	Principle
			Minimal applicable range (%)	Limit of detection (LOD) (%)	Limit of quantification (LOQ) (%)	Precision (RSD_R) (%) no more than	Recovery (%)		
salted fish of Gadidae family of fishes	salt determined as chloride expressed as sodium chloride	(NaCl) From 7.3 (Cl^-)	~~6.8–8.1~~ 7-8	0.8	1.5	~~5.9~~ ≤ 6		AOAC 971.27 AOAC 976.18 ~~AOAC 937.09~~	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~~ 3-6 ~~1.7–3.4~~ 2-3	0.3 0.2	0.6 0.4	~~6.8~~ ≤ 7 ~~7.3~~ ≤ 7	97–103	NMKL 178 AOAC 971.27 AOAC 976.18 ~~AOAC 937.09~~	Titrimetry (potentiometric) Titrimetry (potentiometric) Titrimetry (potentiometric) ~~Titrimetry~~

1.8 MISCELLANEOUS PRODUCTS

Miscellaneous products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Tehena	Protein content	ISO 1871	Titrimetry, Kjeldahl	~~I~~ IV

1.9 SUGARS AND HONEY

Sugars and honey				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Honey	**Free a~~A~~**cidity	MAFF Validated Method V19 ~~***J. Assoc. Public Analysts (1992) 28 (4) 171-175***~~	Titrimetry	I
Honey	Moisture	AOAC 969.38B **/** ~~**or**~~ MAFF Validated Method V21	Refractometry	I
~~**Honey**~~	~~**Sample preparation**~~	~~**AOAC 920.180**~~		
Honey	Solids, water-insoluble	MAFF Validated Method V22 **/ IHC 8** ~~***J. Assoc. Public Analysts (1992) 28(4) 189-193***~~	Gravimetry **drying at 135°C**	I
~~**Honey**~~	~~**Sugars added (for sugar profile)**~~	~~**AOAC 998.18**~~	~~**Carbon isotope ratio mass spectrometry**~~	~~**I**~~
~~**Honey**~~	~~**Sugars added: detection of corn and cane sugar products**~~	~~**AOAC 978.17**~~	~~**Carbon isotope ratio mass spectrometry**~~	~~**I**~~
Honey excluding manuka honey	**Sugars added: detection of corn and cane sugar products**	**AOAC 998.12**	**IRMS**	**II**
Sugars (dextrose anhydrous and dextrose monohydrate)	Solids, total	ISO 1741	Gravimetry (**drying at 100°C,** vacuum oven)	I
Sugars (glucose syrup and dried glucose syrup)	Solids, total	ISO 1742	Gravimetry (**drying at 70°C,** vacuum oven)	I
Sugars (dextrose anhydrous and dextrose monohydrate, dried glucose syrup, glucose syrup, powdered dextrose, lactose)	Sulphated ash	ISO 5809	~~**Single sulphonation**~~ **Gravimetry (incineration at 525°C)**	I
Sugars (soft brown sugar)	Sulphated ash	ICUMSA GS ~~**1/3/4/7/8-11**~~ **3-11**	Gravimetry **(incineration at 650°C)**	I
Sugars (fructose**, lactose**)	pH	ICUMSA GS ~~**1/2/3/4/7/8-23**~~ **1-23**	Potentiometry	~~**I**~~ **II**

Sugars and honey				
Commodity	**Provision**	**Method**	**Principle**	**Type**
~~Sugars (lactose)~~	~~pH~~	~~ICUMSA GS 1/2/3/4/7/8-23~~	~~Potentiometry~~	~~I~~
Sugars (fructose)	Loss on drying	ISO 1742	Gravimetry **(vacuum drying at 70°C)**	I
Sugars (plantation or mill white sugar**, powdered sugar, soft white sugar and soft brown sugar, white sugar**)	Loss on drying	ICUMSA GS ~~2/1/3-15~~ **2-15**	Gravimetry **(drying at 105°C)**	I
~~Sugars (powdered sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~
~~Sugars (soft white sugar and soft brown sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~
~~Sugars (white sugar)~~	~~Loss on drying~~	~~ICUMSA GS 2/1/3-15~~	~~Gravimetry~~	~~I~~
Sugars (glucose syrup and dried glucose syrup)	Reducing sugar	ISO 5377	Titrimetry **(Lane & Eynon)**	I
Sugars (lactose)	Lactose, anhydrous **(as reducing sugars)**	**USP General Chapter 731 and** ICUMSA GS ~~1/2/3/4/7/8-23~~ **4-3**	~~Titrimetry~~ **Calculation from loss on drying (80°C) and Titrimetry - Lane & Enyon**	~~II~~ **IV**
~~Sugars (plantation or mill white sugar)~~	~~Sulphur dioxide~~	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~
~~Sugars (powdered sugar and powdered dextrose)~~	~~Sulphur dioxide~~	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~
~~Sugars (raw cane sugar)~~	~~Sulphur dioxide~~	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~
~~Sugars (soft white sugar and soft brown sugar)~~	~~Sulphur dioxide~~	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~

Sugars and honey				
Commodity	**Provision**	**Method**	**Principle**	**Type**
~~Sugars (white sugar)~~	~~Sulphur dioxide~~	~~ICUMSA GS 2/3-35~~ ~~NMKL 135~~ ~~EN 1988-2~~	~~Enzymatic method~~	~~II~~
Sugars (soft white sugar and soft brown sugar)	Sucrose plus invert sugar **(as reducing sugars)**	ICUMSA GS ~~4/3-7~~ **4-7**	Titrimetry	~~I~~ **IV**
Sugars (plantation and mill white sugar, **soft white sugar, powdered sugar**)	Colour **(ICUMSA Unit)**	ICUMSA GS ~~9/1/2/3-8~~ **9-8**	**Visible spectrophotometry** ~~Photometry~~	I
~~Sugars (powdered sugar)~~	~~Colour~~	~~ICUMSA GS 2/3-9~~	~~Photometry~~	~~I~~
~~Sugars (soft white sugar)~~	~~Colour~~	~~ICUMSA GS 2/3-9~~	~~Photometry~~	~~I~~
Sugars (white sugar, **powdered sugar**)	Polarization	ICUMSA GS ~~2/3-1~~ **2-1**	Polarimetry	~~II~~ **I**
~~Sugars (powdered sugar)~~	~~Polarization~~	~~ICUMSA GS 2/3-1 after filtration if necessary to remove any anticaking agents~~	~~Polarimetry~~	~~II~~
Sugars (powdered sugar)	**Polarization**	**ICUMSA GS 3-1**	**Polarimetry**	**III**
Sugars (white sugar, powdered sugar, plantation or mill white sugar)	**Polarization**	**ICUMSA GS ~~1/2/3-1~~ 1-1** **(powdered sugars, if filtration to remove any anticaking agents is unnecessary)**	**Polarimetry**	**II**
~~Sugars (plantation or mill white sugar)~~	~~Polarization~~	~~ICUMSA GS 1/2/3-1~~	~~Polarimetry~~	~~II~~
Sugars (white sugar, powdered sugar, plantation or mill white sugar)	**Polarization**	**ICUMSA GS 1-2**	**Polarimetry**	**III**

Part 2

METHODS OF ANALYSIS FOR REVOCATION BY CAC49 (for revocation from the respective standard as indicated)

Note: Revocations from the commodity standards are indicated in **red** and ~~strikethrough.~~

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

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.

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

~~**According to ISO 5509:2000.**~~

***GENERAL STANDARD FOR FRUIT JUICES AND NECTARS* (CXS 247-2005)**

9. METHODS OF ANALYSIS AND SAMPLING

Table 2: Methods of analysis and sampling

PROVISION	METHOD	PRINCIPLE	TYPE
~~**Vitamin C (Sections 3.2 Quality criteria and 3.3 Authenticity)[a]**~~	~~**EN 14130 (2004)**~~	~~**High performance liquid chromatography (HPLC)**~~	~~**II**~~
~~**Pectin (Section 4 Additives)**~~	~~**IFU Method No. 26 (1964/1996)**~~	~~**Precipitation/photometry**~~	~~**I**~~
~~**Stable hydrogen isotope ratio of water from fruit juices (Sections 3.2 Quality criteria and 3.3 Authenticity)[a]**~~	~~**ENV 12142 (1997)**~~	~~**Stable isotope mass spectrometry**~~	~~**II**~~
~~**Carbon dioxide (Sections 4 Additives and 5 Processing aids)**~~	~~**IFU Method No. 42 (1976)**~~	~~**Titrimetry (back-titration after precipitation)**~~	~~**IV**~~

Part 3

SAMPLING PLANS FOR ADOPTION BY CAC49 (For inclusion in the respective standard(s) as indicated)

3.1 CODEX COMMITTEE ON CONTAMINANTS IN FOOD

SAMPLING PLANS FOR TOTAL AFLATOXINS AND OCHRATOXIN A IN CERTAIN SPICES (i.e. NUTMEG, DRIED CHILLI AND PAPRIKA)

(for inclusion in the *General standard for contaminants and toxins in food and feed,* CXS 193-1995)

A) Spices with large particle size (Whole nutmeg, whole dried chilli and whole paprika)

In case of large lots and on condition that the sublot can be separated physically, each lot shall be subdivided into sublots following Table 1. Taking into account that the weight of the lot is not always an exact multiple of the weight of the sublots, the weight of the sublot may exceed the mentioned weight in Table 1 by a maximum of 20%.

Table 1: Subdivision of Spices sublots according to lot weight – Whole nutmeg, whole dried chilli and whole paprika –

Lot weight (tonne)	Weight or number of sublots	No incremental samples	Aggregate sample weight (kg)
≥ 500	100 tonnes	100	10
> 125 and < 500	5 sublots	100	10
≥ 25 and ≤ 125	25 tonnes	100	10
< 25	—	10 – 100 (*)	1 - 10
(*) Depending on the lot weight — see Table 2			

Each sub-lot shall be sampled separately. The number of incremental samples of 100 g to be taken depends on the weight of the lot, with a minimum of 10 and a maximum of 100. The figures in the following Table 2 shall be used to determine the number of incremental samples to be taken and the subsequent division of the aggregate sample.

Table 2: Number of incremental samples to be taken according to lot weight – Whole nutmeg, whole dried chilli and whole paprika – (for lots < 25 tonnes)

Lot weight (tonnes)	No of incremental samples	Aggregate sample weight (kg)
≤ 0.1	10	1
> 0.1 – ≤ 0.2	15	1.5
> 0.2 – ≤ 0.5	20	2
> 0.5 – ≤ 1.0	30	3
> 1.0 – ≤ 2.0	40	4
> 2.0 – ≤ 5.0	60	6
> 5.0 – ≤ 10.0	80	8
> 10.0 – <25.0	100	10

If the test result is ≤ Codex ML, then accept the lot; otherwise, reject the lot.

B) Spices with small particle size (crushed/cracked/broken/flakes of nutmeg, dried chilli and paprika)

In the case of large lots and on condition that the sublot can be separated physically, each lot shall be subdivided into sublots following Table 3. Taking into account that the weight of the lot is not always an exact multiple of the weight of the sublots, the weight of the sublot may exceed the mentioned weight in Table 3 by a maximum of 20%.

Table 3: Subdivision of spices sublots according to lot weight
- crushed/cracked/broken/flakes of nutmeg, dried chilli and paprika -

Lot weight (tonnes)	Weight or number of sublots	Number of incremental samples	Aggregate sample weight (kg)
≥ 25	25 tonnes	100	10
< 25	—	5 – 100 (*)	0.5 – 10
(*) Depending on the lot weight — see Table 4			

Each sublot shall be sampled separately. The number of incremental samples of 100 g to be taken depends on the lot weight, with a minimum of 5 and a maximum of 100. resulting in an aggregate sample of 0.5 to 10 kg. Table 4 can be used to determine the number of incremental samples to be taken from lots of various sizes.

Table 4: Number of incremental samples to be taken according to lot weight
- crushed/cracked/broken/flakes of nutmeg, dried chilli and paprika –
(for lots < 25 tonnes)

Lot weight (tonnes)	Number of incremental samples	Aggregate sample weight (kg)
≤ 0.01	5	0.5
> 0.01 – ≤ 0.1	10	1
> 0.1 – ≤ 0.2	15	1.5
> 0.2 – ≤ 0,5	20	2
> 0.5 – ≤ 1.0	30	3
> 1.0 – ≤ 2.0	40	4
> 2.0 – ≤ 5.0	60	6
> 5.0 – ≤ 10.0	80	8
> 10.0 – < 25.0	100	10

If the test result is ≤ Codex ML, then accept the lot; otherwise, reject the lot.

C) Powdered spices (obtained by grinding nutmeg, dried chilli and paprika)

In the case of large lots and on condition that the sublot can be separated physically, each lot shall be subdivided into sublots following Table 5. Taking into account that the weight of the lot is not always an exact multiple of the weight of the sublots, the weight of the sublot may exceed the mentioned weight in Table 5 by a maximum of 20%.

Table 5: Subdivision of spices sublots according to lot weight
- Powdered spices (nutmeg, dried chilli and paprika) -

Lot weight (tonnes)	Weight or number of sublots	Number of incremental samples	Aggregate sample weight (kg)
≥ 25	25 tonnes	50	4
< 25	—	3 – 50 (*)	0.24 – 4.0
(*) Depending on the lot weight — see Table 6			

Each sublot shall be sampled separately. The number of incremental samples of 80 g to be taken depends on the lot weight, with a minimum of 3 and a maximum of 50 incremental samples. Table 6 can be used to determine the number of incremental samples to be taken from lots of various sizes.

Table 6: Number of incremental samples of powdered spices to be taken depending on the weight of the lot - (for lots < 25 tonnes) -

Lot weight (tonnes)	Minimum number of incremental samples	Minimum aggregate sample weight (kg)
≤ 0.1	3	0.24
> 0.1 – ≤ 0.5	10	0.8
> 0.5 – ≤ 5.0	25	2
> 5.0 – ≤ 10.0	35	2.8
> 10.0 – < 25.0	50	4

If the test result is ≤ Codex ML, then accept the lot; otherwise, reject the lot.

3.2 FAO/WHO COORDINATING COMMITTEE FOR ASIA

SAMPLING PLANS FOR VARIOUS COMMODITIES IN REGIONAL STANDARDS DEVELOPED BY CCASIA

(for inclusion in following regional standards: CXS 322R-2015; CXS 298R-2009; CXS 301R-2011; CXS 323R-2013; CXS 323-2017; CXS 354R-2023; CXS 355R-2023; and the Regional standard for quick frozen dumpling (Asia) pending adoption)

Inspection by attributes plans in accordance with ISO 2859-1 (AQL=6.5%)

Lot size Number of packages, each containing 1 or more units)	Inspection level					
	Reduced		Normal		Tightened	
	Sample size (n)	Acceptance number (c)	Sample size (n)	Acceptance number (c)	Sample size (n)	Acceptance number (c)
2-15	2	0	2	0	3	0
16-50	5	1	8	1	13	1
51-90	5	1	13	2	13	1
91-150	8	2	20	3	20	2
151-280	13	3	32	5	32	3
281-500	20	5	50	7	50	5
501-1200	32	6	80	10	80	8
1201-3200	50	8	125	14	125	12
3201 and over	80	10	200	21	200	18

Note

- If sample size n equals to or exceeds lot size, carry out 100% inspection.
- The number of samples to be analyzed is n. If the number of samples that do not meet criterion is less than or equal to c, the lot should be accepted. Otherwise, the lot should be rejected.

Inspection by variable plans in accordance with ISO 3951-1 (AQL=6.5%)

Lot size (number of packages, each containing 1 or more units)	Inspection level					
	Reduced		Normal		Tightened	
	n	k				
2-15	4	0.586				
16-25	4	0.586				
26-50	4	0.586				
51-90	5	0.550				
91-150	7	0.507				
151-280	9	0.628	21			
281-500	14	0.601	33			
501-1200	21	0.830	52			
1201-3200	33	0.954	79			
3201 and over	52	1.120	124			

Note

- If sample size n equals to or exceeds lot size, carry out 100 percent inspection.
- In case of minimum limit, if the sample mean is higher than the minimum limit plus k times standard deviation, the lot should be accepted. Otherwise, reject the lot.

In case of maximum limit, if the sample mean is lower than the maximum limit minus k times standard deviation, the lot should be accepted. Otherwise, reject the lot.

Part 4

METHODS OF ANALYSIS WHICH REMAIN UNCHANGED IN CXS 234 AS A RESULT OF DECISIONS BY CCMAS45 (For information)

4.1 CEREALS, PULSES AND LEGUMES AND DERIVED PRODUCTS

Cereals, pulses and legumes and derived products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Quinoa	Protein	ISO 1871	Titrimetry (Kjeldahl digestion)	IV
Degermed maize (corn) meal and maize (corn) grits	Protein	ICC 105/2 and ICC 110/1	Calculation from moisture and Titrimetry (Kjeldahl digestion)	I

4.2 FISH AND FISHERY PRODUCTS

Fish and fishery products				
Commodity	**Provision**	**Method**	**Principle**	**Type**
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Crude protein	AOAC 2001.11	Titrimetry (Kjeldahl digestion)	IV

4.3 SUGARS AND HONEY

Sugars and honey				
Commodity	**Provision**	**Method**	**Principle**	**Type**
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 minutes		IV

Part 5

METHODS OF ANALYSIS WHICH REMAIN UNCHANGED IN STANDARDS OTHER THAN CXS 234 AS A RESULT OF DECISIONS BY CCMAS45 (For information)

***STANDARD FOR PEANUTS* (CXS 200-1995)**

ANNEX

Factor/Description		Limit	Method of analysis
1.	**In-Pod Defects**		
1.1	**Empty Pods:** pods containing no kernels.	3% m/m	To be determined
1.2	**Damaged Pods:** include: shrivelled pods (pods which are imperfectly developed and shrunken); or pods having cracks or broken areas which cause conspicuous openings or which seriously weaken a large portion of the pod, especially if the kernel inside the pod is easily visible without any pressure forced upon the edges of the crack.	10% m/m	To be determined
1.3	**Discoloured Pods:** pods having dark discolouration caused by mildew, staining, or other means affecting 50% or more of the pod surface.	2% m/m	To be determined
2.	**Kernel Defects**		
2.2	**scoloured Kernels**: kernels are not damaged but are affected by one or more of the following: flesh (cotyledon) discolouration which is darker than a light yellow colour or consists of more than a slight yellow pitting of the flesh; and/or skin discolouration which is dark brown, dark grey, dark blue, or black, and covers more than 25% of the kernel.	3% m/m	To be determined

2.3	**Broken and Split Kernels:** broken kernels are those from which more than a quarter has been broken off. Split kernels have been split into halves.	3% m/m	To be determined
3.	Peanuts other than the designated type.	5% m/m	To be determined

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

ANNEX

	Factor/Description	Limit	Method of analysis
2	**Hull-less and broken kernels** (kernels with no hulls and broken of any size).	5% m/m max	To be developed
3	**Edible grains other than oats** (whole or identifiably broken).	3% m/m max	To be developed
4	**Damaged kernels** (including pieces of kernels that show visible deterioration due to moisture, weather, disease, insects, mould, heating, fermentation, sprouting or other causes).	3% m/m max	To be developed
5	**Wild oats:** *Aventa fatua* or *Aventa sterilis*.	0.2% m/m max	To be developed
6	**Insect bored kernels:** kernels which have been visibly bored or tunnelled by insects.	0.5% m/m max	To be developed
7	**Blemished grains,** i.e. grains with stained hulls due to the action of climatic factors.	To be decided	To be developed