

# COMISIÓN DEL CODEX ALIMENTARIUS



Organización de las Naciones  
Unidas para la Alimentación  
y la Agricultura



Organización  
Mundial de la Salud

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Tema 4.1 del programa

CX/MAS 26/45/4  
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## PROGRAMA CONJUNTO FAO/OMS SOBRE NORMAS ALIMENTARIAS COMITÉ DEL CODEX SOBRE MÉTODOS DE ANÁLISIS Y TOMA DE MUESTRAS

Cuadragésima quinta reunión

Budapest, Hungría

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### EXAMEN DE LOS MÉTODOS DE ANÁLISIS EN NORMAS PARA PRODUCTOS (PESCADO Y PRODUCTOS PESQUEROS, GRASAS Y ACEITES, CEREALES, LEGUMBRES Y LEGUMINOSAS Y PRODUCTOS DERIVADOS)

(Documento preparado por el grupo de trabajo electrónico dirigido por el Canadá)

Los miembros y observadores del Codex que deseen presentar comentarios sobre las recomendaciones contenidas en este documento deberán hacerlo siguiendo las instrucciones de la carta circular CL 2026/1-MAS disponible en la página web del Codex/Circulares: <https://www.fao.org/fao-who-codexalimentarius/resources/circular-letters/es/>

#### INTRODUCCIÓN

1. La Secretaría del Codex ha estado modificando las normas para productos a la luz de la reafirmación por parte del CCMAS, expresada en su 37.<sup>a</sup> reunión (2016), de la decisión de que los *Métodos de análisis y de muestreo recomendados* (CXS 234-1999) fueran la única referencia para los métodos de análisis en las normas del Codex. Los métodos de análisis establecidos en las normas para productos se han revisado como conjuntos manejables. Una vez completado cada conjunto manejable, todos los métodos de análisis recogidos en las normas para productos deberán sustituirse por una referencia general a la norma CXS 234-1999, de conformidad con el *Manual de procedimiento*.
2. Se ha completado el examen de los métodos de análisis para los conjuntos manejables de grasas y aceites, cereales, legumbres, leguminosas y productos derivados, y pescado y productos pesqueros. Durante la labor de la Secretaría del Codex para enmendar las normas para productos correspondientes, se determinó que:
  - algunos métodos de análisis no se incluyeron en la revisión de la norma CXS 234-1999, pero sí figuraban en las normas para productos conexas;
  - los métodos de análisis en las normas para legumbres, leguminosas y productos derivados pertinentes se identificaron como «por desarrollar» o «por determinar»; y
  - la Comisión del Codex Alimentarius (CAC), en su 46.<sup>o</sup> período de sesiones (2023), había adoptado nuevos métodos de análisis para las disposiciones de la *Norma para la harina y la sémola de maíz sin germen* (CXS 155-1985) y la *Norma para aceites vegetales especificados* (CXS 210-1999) y estos se habían incorporado en la norma CXS 234 y, como resultado de la adopción, era necesario confirmar o determinar si deben revocarse los métodos de análisis de las normas para productos.
3. El CCMAS, en su 44.<sup>a</sup> reunión, debatió los métodos que aparecen en las normas para grasas y aceites, cereales, legumbres, leguminosas y productos derivados, y pescado y productos pesqueros, así como la mejor manera de abordar las cuestiones señaladas por la Secretaría del Codex. Dado que no hubo tiempo suficiente para completar la revisión necesaria de los métodos, el CCMAS acordó establecer un grupo de trabajo electrónico (GTE) presidido por el Canadá, que trabajaría únicamente en inglés, para examinar los métodos que quedaban en las normas para grasas y aceites, cereales, legumbres, leguminosas y productos derivados, y pescado y productos pesqueros. Se encomendó al GTE el examen de los métodos descritos en el Apéndice III, cuadros 1, 2, 6, 7 y 8 del documento MAS44/CRD02 Rev.1 como parte de la actualización de la norma CXS 234-1999.
4. Durante el examen, se solicitó al GTE que:
  - determinara si los métodos de análisis seguían siendo adecuados para su finalidad;

- revisara o proporcionara el principio y la tipificación, o propusiera criterios de rendimiento numéricos, si un método de análisis seguía siendo adecuado para su finalidad, de modo que pudiera transferirse a la norma CXS 234-1999; o
  - recomendara la revocación de los métodos de análisis de la norma para productos, si el método de análisis no era adecuado para su finalidad.
5. También se solicitó al GTE que determinara si se podían identificar métodos de análisis para las partidas identificadas como «por desarrollar» o «por determinar».

### PROCESO DEL GTE

6. El GTE se creó y gestionó a través del foro en línea del Codex. La lista de participantes figura en el Apéndice IV.
7. Todos los miembros y observadores del Codex fueron bienvenidos y se pidió a los participantes del GTE que revisaran los métodos propuestos, los principios metodológicos y la tipificación. Los participantes también pudieron aportar comentarios sobre los métodos propuestos para que el GTE los tuviera en cuenta.
8. Además, se solicitó asesoramiento experto a los organismos de normalización, pidiendo información sobre posibles métodos para abordar aquellas disposiciones identificadas como «por desarrollar» o «por determinar».

### RESULTADOS DE LA CONSULTA DEL GTE

9. El GTE señaló que algunos métodos de análisis identificados en el Apéndice III, cuadros 1, 2, 6, 7 y 8 del documento MAS44/CRD02 Rev.1 se encontraban tanto en la norma para productos como en la norma CXS 234, y que algunos métodos de análisis solo se encontraban en la norma para productos.
10. A partir de las respuestas de los expertos del GTE, se hicieron las siguientes observaciones:
- los métodos de análisis deben tener una pertinencia directa con la norma del Codex a la que se refieren, pero no se requieren límites numéricos; y
  - es preciso realizar pequeños cambios
    - a algunos nombres de productos para garantizar que el producto incluido esté correlacionado con la norma, y
    - a algunos nombres de disposiciones para garantizar la comprensión de por qué el método es adecuado.
11. En consecuencia, como resultado del examen por parte del GTE de los métodos de análisis identificados en el Apéndice III, cuadros 1, 2, 6, 7 y 8 del documento MAS44/CRD02 Rev.1, se ha preparado el Apéndice I del presente documento en dos partes. En la Parte 1 se enumeran las enmiendas y revocaciones a la norma CXS 234-1999 que el GTE ha recomendado para su consideración por el CCMAS en su 45.<sup>a</sup> reunión. En la Parte 2 se enumeran las enmiendas a las normas respectivas para productos, incluidas las enmiendas consecuentes tras la consulta con la Secretaría del Codex.
12. Para algunos productos y disposiciones, el GTE también ha recomendado métodos que ya se han incluido en CXS 234-1999. Por lo tanto, el GTE recomienda que estos métodos se mantengan en CXS 234-1999 sin necesidad de modificaciones. Estos métodos figuran en el Apéndice II.

#### Métodos de análisis en la Norma para el maní (CXS 200-1995) y la Norma para la avena (CXS 201-1995)

13. Durante el trabajo del GTE, se observó que existen métodos dentro de las normas nacionales para abordar los aspectos que actualmente se identifican como «por desarrollar» en la *Norma para la avena* (CXS 201-1995) o «por determinar» en la *Norma para el maní* (CXS 200-1995) en lo que respecta a las disposiciones especificadas. El GTE se mostró reticente a sugerir documentos normativos nacionales como fuente de métodos debido a la preocupación que suscitaba citar este tipo de documentos en la norma CXS 234, incluso con la salvedad de que la ratificación se centra únicamente en el método y no se extiende a los aspectos normativos.
14. De manera similar, se descubrió que un gobierno nacional proporcionaba instrucciones de inspección para el maní (cacahuete); sin embargo, el uso de este documento requeriría resaltar las subsecciones apropiadas del mismo, lo que podría dar lugar a confusión y, por lo tanto, no se propuso.
15. Los métodos de análisis en cuestión se enumeran en el Apéndice III del informe.

#### Temas que se presentan para celebrar un debate más amplio

16. Durante la revisión del conjunto manejable para grasas y aceites, el GTE recomendó la norma ISO 10539/AOCS Cc 17-95 para la determinación del contenido de jabón en grasas y aceites comestibles no

cubiertos por normas individuales, y para grasas animales específicas. Dado que este método ya figura para las grasas y aceites (todos) en la norma CXS 234-1999, no daría lugar a una enmienda de CXS 234-1999 (véase el párrafo 12).

17. Sin embargo, teniendo en cuenta los esfuerzos previstos para desarrollar una base de datos en línea para la norma CXS 234-1999, el GTE solicita al CCMAS que considere si los métodos de análisis deben presentarse para cada producto de manera individual, en lugar de agruparse en una partida colectiva, a fin de permitir una búsqueda eficiente de los métodos de análisis.

### **CONCLUSIÓN**

18. El GTE ha cumplido con su mandato. Sin embargo, no pudo identificar ningún método válido internacionalmente adecuado para las disposiciones identificadas en las normas CXS 201-1995 ni CXS 200-1995. Algunos miembros de los organismos de normalización han expresado su disposición a desarrollar métodos para la avena en el futuro; sin embargo, no se identificaron métodos para abordar las necesidades del CCMAS en relación con el maní (cacahuete).

### **RECOMENDACIONES**

19. Se invita al CCMAS a que, en su 45.<sup>a</sup> reunión:
  - estudie la posibilidad de ratificar las enmiendas, incluidas las revocaciones de la norma CXS 234-1999 y las normas para productos conexas, tal como se recomienda en el Apéndice I;
  - tome nota de que los métodos de análisis de la norma CXS 234-1999 que figuran en el Apéndice II no necesitarían modificarse tras el examen de los métodos por parte del GTE en el marco de su mandato;
  - estudie el mejor enfoque para abordar los métodos enumerados en el Apéndice III; y
  - brinde asesoramiento sobre la presentación de métodos de análisis para partidas de grupo, tal y como se describe en los párrafos 16 y 17.

Los apéndices se presentan solo en inglés

## APPENDIX I

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

**Note:** recommended additions are indicated in **bold** and underline, and deletion are indicated with ~~strike through~~. 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
<u>Fish and Fishery Products</u>							
Crackers from <del>marine and freshwater fish, crustacean and molluscan shellfish</del>	Crude protein	<del>Described in the standard</del>			CXS 222 - 2001	CCFFP	
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Moisture	<del>Described in the standard</del>			CXS 222 - 2001	CCFFP	
Crackers from marine and freshwater fish, crustacean and molluscan shellfish	Moisture	<b><u>AOAC 950.46B (air drying)</u></b>	<b><u>Gravimetry</u></b>	<b><u>!</u></b>	CXS 222 - 2001	CCFFP	
Raw bivalve molluscs (shucked)	Drained weight	<del>Described in the standard</del>			CXS 292- 2008	CCFFP	
Raw bivalve molluscs (shucked)	Drained weight	<b><u>AOAC 953.11</u></b>	<b><u>Gravimetry</u></b>	<b><u>!</u></b>	CXS 292- 2008	CCFFP	)

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	Endorsed at CCMAS44 (2025)
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	Endorsed at CCMAS44 (2025)
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	Endorsed at CCMAS44 (2025)
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	Endorsed at CCMAS44 (2025)
<b><u>Quick frozen fish sticks (fish fingers), fish portions and fish fillets—breaded or in batter</u></b>	<b><u>Determination of fish content (declaration)—Nitrogen</u></b>	<b><u>ISO 937 and</u></b>	<b><u>Calculation from</u></b>	<b><u>I</u></b>	<b><u>CXS 166–1989</u></b>	<b><u>CCFFP</u></b>	<b><u>Endorsed at CCMAS44 (2025)</u></b>
	<b><u>Moisture</u></b>	<b><u>ISO 1442 and</u></b>	<b><u>Titrimetry (Kjeldahl digestion) and gravimetry</u></b>				
	<b><u>Total fat</u></b>	<b><u>ISO 1443 and</u></b>					

<u>Ash</u>		<u>ISO 936</u>					
<u>Fats and oils</u>							
<u>Edible</u> Fats and oils not covered by individual standards	Acidity: acid value	ISO 660 / AOCS Cd 3d-63	Titrimetry	I	CXS 19-1981	CCFO	Update the commodity title in CXS 234 to be consistent with CXS 19-1981
<u>Edible</u> 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	Update the commodity title in CXS 234 to be consistent with CXS 19-1981
<u>Edible</u> Fats and Oils not Covered by Individual Standards	Peroxide Value	<del>ISO 3961:1998</del>	<del>Titrimetry (colorimetric)</del>		CXS 19-1981	CCFO	ISO 3961 is for determination of iodine value
<u>Edible</u> Fats and Oils not Covered by Individual Standards	Peroxide Value	<u>AOCS Cd 8b-90 / ISO 3960 / NMKL 158</u>	<u>Titrimetry</u>	<u>I</u>	CXS 19-1981	CCFO	AOCS Cd 8b-90 / ISO 3960 / NMKL 158 is consistent with CXS 234 for Named Vegetable Oils
<del>Fats and Oils not Covered by Individual Standards</del>	<del>Soap content</del>	<del>BS 684 Section 2.65</del>			CXS 19-1981	CCFO	BS 684-2.5 has been superseded by ISO 10539 / AOCS Cc 17-95 (determination of soap).
<del>Named animal fats</del>	<del>Fatty acid composition</del>	<del>ISO 5508: 1995/ 5509: 1999</del>			CXS 211-1999	CCFO	ISO 5508: 1995/ 5509: 1999 have been withdrawn
Named animal fats	Fatty acid composition	<u>AOCS Ce 2-66 and AOCS Ce 1j-07</u>	<u>Preparation of methyl esters and GC-FID</u>	<u>II</u>	CXS 211-1999	CCFO	AOCS Ce 2-66 and AOCS Ce 1j-07 and ISO 12966-2 and ISO 12966-4

Named animal fats	Fatty acid composition	ISO 12966-2 and ISO 12966-4	Preparation of methyl esters and <u>gas chromatography GC-FID</u>	III	CXS 211-1999	CCFO	ISO 12966-4 is a general temperature program method for all FAME
<del>Named animal fats</del>	<del>Soap content</del>	<del>BS 684 Section 2.5</del>			CXS 211-1999	CCFO	BS 684-2.6 has been superseded by ISO 10539 (determination of soap).
Fat Spreads and Blended Spreads	<u>Milk fat content (Butyric acid)</u>	<del>AOAC 990.27; AOCS Ca 5c-87 (97)</del>			CXS 256-1999	CCFO	CXS 256-1999 defined determination of milk fat content (Butyric acid) because Butyric acid is a naturally occurring short-chain saturated fatty acid in the milk fat of cows and other ruminants but not in animal adipose or vegetable fats – identifies source of fat. The conversion factor to milk fat is user-defined since butyric acid content can be variable.  AOAC 990.27 / AOCS Ca 5c-87 both use a packed GC column.
Fat Spreads and Blended Spreads	<u>Milk fat content (Butyric acid)</u>	<u>AOAC 2012.13 / ISO 16958   IDF 231</u>	<u>GC-FID and calculation</u>	I	CXS 256-1999	CCFO	NOTE AOCS Ca 5e-13 uses a capillary column for determination of butyric acid but has not been fully validated.
Fat Spreads and Blended Spreads	Salt content	<del>IDF 12B: 1988, ISO CD 1738 or AOAC 960.29.</del>			CXS 256-1999	CCFO	
Fat Spreads and Blended Spreads	Salt content	<del>AOAC 960.29 / ISO 1738   IDF 12</del>			CXS 256-1999	CCFO	
Fat Spreads and Blended Spreads	Salt content	<u>ISO 15648   IDF 179</u>	<u>Titrimetry (Potentiometric)</u>	II	CXS 256-1999	CCFO	

Fat Spreads and Blended Spreads	Salt content	<b><u>AOAC 2016.03 / ISO 21422   IDF 242</u></b>	<b><u>Titrimetry (Potentiometric)</u></b>	<b><u>III</u></b>			
Fat Spreads and Blended Spreads	Vitamin A	<del>AOAC 985.30;</del> <del>AOAC 992.04; or</del> <del>AOAC 1980, 63, 4</del>	<del>HPLC</del>  <del>HPLC</del>		CXS 256-1999	CCFO	AOAC 985.30 is a method for <i>sampling</i> .  AOAC 992.04 is validated for milk and milk-based infant formula
Fat Spreads and Blended Spreads	Vitamin A	<b><u>EN 12823</u></b>	<b><u>HPLC-UV detection</u></b>	<b><u>II</u></b>	CXS 256-1999	CCFO	EN 12823 validated in margarine
Fat Spreads and Blended Spreads	Vitamin D	<del>AOAC 981.17</del>	<del>HPLC</del>		CXS 256-1999	CCFO	AOAC 981.17 was repealed in 2007
Fat Spreads and Blended Spreads	Vitamin D	<b><u>EN 12821 / NMKL 167</u></b>	<b><u>HPLC-UV</u></b>	<b><u>II</u></b>	CXS 256-1999	CCFO	EN 12821 / NMKL 167, validation in margarine
Fat Spreads and Blended Spreads	Vitamin E	<del>ISO 9936:1997</del>	<b><u>HPLC-UV detection</u></b>	<del>II</del> <b><u>III</u></b>	CXS 256-1999	CCFO	These products may include dairy ingredients (milk fat) but are not milk products per se, so ISO 9936 is considered applicable
Fat Spreads and Blended Spreads	Vitamin E	<b><u>EN 12822</u></b>	<b><u>HPLC- UV detection</u></b>	<b><u>II</u></b>	CXS 256-1999	CCFO	EN 12822 is validated for margarine
Named vegetable oils	Fatty acid composition	<del>ISO 5509: 2000</del>			CXS 210-1999	CCFO	ISO 5509 withdrawn by SDO and replaced by ISO 12966 series.
Named vegetable oils	Fatty acid composition	AOCS Ce 2-66 and AOCS Ce 1h-05	<b><u>Preparation of methyl esters and GC-FID</u></b>	<b><u>II</u></b>	CXS 210-1999	CCFO	AOCS Ce 1h-05 was specifically developed for the isothermal separation of cis/trans FAME prepared from vegetable oils.
Named vegetable oils	Fatty acid composition	<b><u>ISO 12966-2 and ISO 12966-4</u></b>	<b><u>Preparation of methyl esters and GC-FID</u></b>	<b><u>III</u></b>	CXS 210-1999	CCFO	

ISO 12966-4 is a general temperature program method for all FAME.

### Cereals, Pulses, Legumes and Derived Products

Maize (corn)	Broken kernels	ISO 5223-1983	<u>Gravimetry - Sieving (4.5 mm round aperture sieve)</u>	!	CXS 153-1985	CCCPL
Sorghum grains	Fibre, crude	ICC 113 / ISO 6541	<u>Gravimetry (separation, incineration)</u>	!	CXS 172-1989	CCCPL
Rice	Head rice	ISO 7301 (Annex A)	<u>Visual examination, length, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Large broken kernel	ISO 7301 (Annex A)	<u>Visual examination, length, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Medium broken kernel	ISO 7301 (Annex A)	<u>Visual examination, length, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Small broken kernel	ISO 7301 (Annex A)	<u>Visual examination, length, sieving, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Chips	ISO 7301 (Annex A)	<u>Sieving, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Heat-damaged kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Damaged kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Immature kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Chalky kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Red kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL
Rice	Red-streaked kernels	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL

Rice	Pecks	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL	
Rice	Maximum recommended levels of other types of rice	ISO 7301 (Annex A)	<u>Visual examination, gravimetry</u>	!	CXS 198-1995	CCCPL	
Wheat and durum wheat	Minimum test weight	ISO 7971	<u>Gravimetry (in 20 L)</u>	!	CXS 199-1995	CCCPL	Mass per hectolitre (100 L) – ratio of the mass of a cereal to the volume it occupies
Wheat and durum wheat	Shrunken and broken kernels	ISO 5223	<u>Sieving</u>	!	CXS 199-1995	CCCPL	
Wheat and durum wheat	Edible grains other than wheat and durum wheat	ISO 7970 (Annex C)	<u>Sieving and gravimetry</u>	!	CXS 199-1995	CCCPL	
Wheat and durum wheat	Damaged kernels	ISO 7970 (Annex C)	<u>Sieving and gravimetry</u>	!	CXS 199-1995	CCCPL	
Wheat and durum wheat	Insect bored kernels	<del>To be developed</del> <u>ISO 7970 (Annex C/D)</u>	<u>Visual examination and gravimetry</u>	!	CXS 199-1995	CCCPL	<p>May be covered by “grain attacked by pests - grain that shows damage owing to an attack by rodents, insects, mites or other pests”</p> <p>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?</p> <p>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</p>

						provision and specification. Is this a possibility?
Wheat and Durum wheat	Edible grains other than wheat and durum wheat	<u>ISO 11051 (Annex A)</u>	<u>Sieving and gravimetry</u>	!	CXS 199-1995	CCCPL
Wheat and Durum wheat	Damaged kernels	<u>ISO 11051 (Annex A)</u>	<u>Sieving and gravimetry</u>	!	CXS 199-1995	CCCPL
Wheat and Durum wheat	Insect bored kernels	<u>ISO 11051 (Annex A)</u>	<u>Visual examination and gravimetry</u>	!	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" As above
Oats	Minimum test weight	ISO 7971	<u>Gravimetry (in 20 L)</u>	!	CXS 201-1995	CCCPL
						Mass per hectolitre (100 L) – ratio of the mass of a cereal to the volume it occupies

**PART 2: RECOMMENDED AMENDMENTS TO COMMODITY STANDARDS**

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

**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)<sup>i</sup> 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)****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)****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)****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
<b>DEFECTS</b>		
▪ 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%	<del>ISO 5223-1983</del> (4.50 mm metal sieve) <b><u>Refer to Section 8</u></b>
▪ other grains	MAX: 2.0%	Visual Examination

**STANDARD FOR SORGHUM GRAINS (CXS 172-1989)****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)<sup>ii</sup> 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.

<b>CRUDE FIBRE</b>	Buyer preference	<del>ICC-113</del> Determination of crude fibre value (Type I) — or — <del>ISO 6541 (1981)</del> Agricultural food products determination of crude fibre content modified Scharrer method <b><u>Refer to Section 8</u></b>
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**STANDARD FOR RICE (CXS 198-1995)****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**

Factor/Description		Limit				Method of analysis
<b>4.</b>	<b>OTHER QUALITY FACTORS</b> 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.					
<b>4.1</b>	<b>Whole Kernel</b> is a kernel without any broken part.					
<b>4.1.1</b>	<b>Head Rice</b> 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) <b>Refer to Section 8</b>
<b>4.1.2</b>	<b>Large Broken Kernel</b> 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) <b>Refer to Section 8</b>
<b>4.1.3</b>	<b>Medium Broken Kernel</b> 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) <b>Refer to Section 8</b>
<b>4.1.4</b>	<b>Small Broken Kernel</b> 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 diameter.	buyer preference				ISO 7301 (Annex A) <b>Refer to Section 8</b>
<b>4.1.5</b>	<b>Chips</b> 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) <b>Refer to Section 8</b>
<b>4.2</b>	<b>Defective Kernels</b>	<b>Husked Rice</b>	<b>Milled Rice</b>	<b>Husked Parboiled Rice</b>	<b>Milled Parboiled Rice</b>	

4.2.1	<b>Heat-Damaged Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.2	<b>Damaged Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.3	<b>Immature Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.4	<b>Chalky Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.5	<b>Red Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.6	<b>Red-Streaked Kernels</b> 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) <b><u>Refer to Section 8</u></b>
4.2.7	<b>Pecks</b> 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) <b><u>Refer to Section 8</u></b>
4.3	<b>Maximum Recommended Levels of Other Types of Rice</b>					ISO 7301 (Annex A) <b><u>Refer to Section 8</u></b>
	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)****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. <b>Minimum test weight:</b> the weight of a hundred litre volume expressed in kilograms per hectolitre.	68	70	<del>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.</del>  <b><u>Refer to Section 8</u></b>
2. <b>Shrunken and broken kernels:</b> 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	<del>ISO 5223-1983 "Test sieves for cereals".</del>  <b><u>Refer to Section 8</u></b>
3. <b>Edible Grains other than wheat and durum wheat</b> (whole or identifiably broken)	2.0% m/m max	3.0% m/m max	<del>ISO 7970-1987: (Annex C)</del>  <b><u>Refer to Section 8</u></b>
4. <b>Damaged kernels</b> (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	<del>ISO 7970-1987: (Annex C)</del>  <b><u>Refer to Section 8</u></b>

5. <b>Insect bored kernels:</b> kernels which have been visibly bored or tunnelled by insects	1.5% m/m	2.5% m/m	<del>To be developed</del> <b><u>Refer to Section 8</u></b>
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#### **STANDARD FOR DEGERMED MAIZE (CORN) MEAL AND MAIZE (CORN) GRITS (CXS 155-1985)**

### **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)<sup>iii</sup> 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.

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

STANDARD FOR OATS (CXS 201-1995)

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: At least 46 kg/hl The weight of a hundred litre volume of oats expressed as kilograms per hectolitre.		<del>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</del>  <b><u>Refer to Section 8</u></b>

## APPENDIX II

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

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	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

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	<b>NOTE: ISO 6478 withdrawn</b>
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			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 IV

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