

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

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Agenda item 4.6

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## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX ALIMENTARIUS COMMISSION

Forty-seventh Session

Geneva, Switzerland, CIG

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### COMMENTS ON DRAFT STANDARDS AND RELATED TEXTS SUBMITTED BY THE 43RD SESSION OF THE CODEX COMMITTEE ON METHODS OF ANALYSIS AND SAMPLING FOR ADOPTION BY THE 47TH SESSION OF THE CODEX ALIMENTARIUS COMMISSION

#### BACKGROUND

1. This document compiles the comments on the methods of analysis, performance criteria and annex on nitrogen conversion factors (NCF) as contained in the relevant Circular Letter ([CL 2024/76-CAC](#)). The comments are those received through the Codex Online Commenting Systems (OCS)<sup>1</sup>, or via email by the time this document was issued. The comments are as shown in Appendix I.

#### EXPLANATORY NOTES ON APPENDIX I

2. The comments received are presented in a table format, with two columns as follows:
  - **First column** – Presents the comments with the rationale.
  - **Second column** – Presents the provider of the comments (name of Member or Observer).

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<sup>1</sup> OCS is an online tool that enables Codex Contact Points to submit comments on draft texts in a standardised way, thus providing more transparency and better management of comments on different Codex texts as requested through Circular Letters. Since its launching at CAC39 (2016), the OCS has been used for different Codex Committees.

**METHODS OF ANALYSIS/PERFORMANCE CRITERIA AND ANNEX ON NITROGEN CONVERSION FACTORS**

**COMMENTS IN REPLY TO CL 2024/76-CAC**

*Comments by Chile, Colombia, Costa Rica, Ecuador, Egypt, Paraguay, Peru, Thailand, United Arab Emirates, USA and European Vegetable Protein Association*

COMMENT	MEMBER / OBSERVER
<p>COMMENTS. Chile está de acuerdo con la inclusión del apartado parte 3 “NITROGEN TO PROTEIN CONVERSION FACTORS FOR COMMODITIES APPROVED BY COMMODITY COMMITTEES”.</p> <p><b><u>In spanish:</u></b></p> <p>En relación al documento se sugiere las siguientes mejoras:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Incorporar en el título la sigla “Nx” que es ampliamente utilizado por los comités de productos y laboratorios para fines de expresar el término de nitrogen to protein conversion factors.</li> <li><input type="checkbox"/> En el apartado de Animal protein Source, se sugiere indicar “meat and meat products” en consideración de que el factor de 6.25 es utilizado para las carnes y otros tipos de carnes que ya tienen este factor en el codex aprobado por el comité respectivo (ej. Cooked cured ham, Cooked cured pork shoulder &amp; Dried meat) y de este modo quede contenido en un sólo descriptor todos los productos de carne.</li> <li><input type="checkbox"/> En Plant Protein Source: <ul style="list-style-type: none"> <li>- Se sugiere incluir los factores de conversión de los siguientes “miscellaneous products”: Natto, Cheonggukjang y Thua Nao de 5.71, señalados en el CXS 234 de acuerdo a lo aprobado por CCASIA para fines del CXS 354R-2023.</li> <li>- Se sugiere incorporar el término de Vegetable protein Products (VPP) a la descripción.</li> <li>- Incorporar el factor de Nx 5.71 para “Millet, millet products” de acuerdo a lo aprobado en el CXS 170-1989.</li> </ul> </li> </ul> <p>Chile que junto a Brazil lideraron la iniciativa de generar este anexo que será incorporado al CXS 234, esta de acuerdo con que este sea aprobado e incluido en este estándar del codex, lo que contribuirá a una mejor comprensión y armonización de los documentos del Codex para fines del análisis de la proteína en los alimentos.</p> <p><b><u>In English:</u></b></p> <p>Regarding the annex, the following are suggested to be improved:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Incorporate in the title the acronym “Nx” which is widely used by product committees and laboratories for purpose of expressing the term nitrogen to protein conversion factors.</li> <li><input type="checkbox"/> In the Animal protein Source, section, it is suggested to indicate “meat and meat products” considering that the factor of 6.25 is used for meats and other types of meats that already have this factor in the codex approved by the committee. respective (e.g. cooked ham, cooked pork shoulder and dried meat) and in this way all meat products are contained in a single descriptor.</li> <li><input type="checkbox"/> In Plant Protein Source: <ul style="list-style-type: none"> <li>- It is suggested to include the conversion factors of the following “miscellaneous products”: Natto, Cheonggukjang and Thua Nao of 5.71, indicated in CXS 234 as approved by CCASIA for the purposes of CXS 354R-2023.</li> <li>- It is suggested to incorporate the term Vegetable Protein Products (VPP) into the description.</li> <li>- Incorporate the factor of Nx 5.71 for “Millet, millet products” according to those approved in CXS 170-1989.</li> </ul> </li> </ul>	<p><b>Chile</b></p>

<p>Chile, which together with Brazil led the initiative to prepare this annex that will be incorporated into CXS 234, agrees that it be approved and included in this codex standard, which will contribute to a better understanding and harmonization of Codex documents for the purposes of analysis of protein in food.</p> <p>PART 3 NITROGEN TO PROTEIN CONVERSION FACTORS (Nx) FOR COMMODITIES APROVED BY COMMODITY COMMITTEES</p> <p>Animal Protein Source</p> <p>Milk and milk products - 6.38 Meat and meat products- 6.25(It is suggested to add meat products Cook cured ham - 6.25lt (is suggested to delete this phrase)</p> <p>Infant formula - The calculation of the protein content of infant formulas prepared ready for consumption may be based on N x 6.25, unless a scientific justification is provided for the use of a different conversion factor for a particular product. The value of 6.38 is generally established as a specific factor appropriate for conversion of nitrogen to protein in other milk products, and the value of 5.71 as a specific factor for conversion of nitrogen to protein in other soy products.</p> <p>Fish and fishery products</p> <p>Crackers from marine and freshwater fish, crustaceans and molluscan shellfish - 6.25 Plant Protein Source Wheat, wheat protein products - 5.71 Soya and non-ferment soybean products - 5.71 Maize - 6.25 Quinoa - 6.25 Sorghum - 6.25 Tempe - 5.71 Gochujang - 6.25 Natto – 5,71lt (It is suggested to add) Cheonggukjang- 5,71 (It is suggested to add) Thua Nao- 5,71(It is suggested to add) Millet, millet products – 5.71 (CXS 170-1989)(It is suggested to add) Vegetable protein Products (VPP) (It is suggested to add): Products produced by separation from wheat and soya grains and flours of certain non-protein constituents (starch, other carbohydrates) - 6.2</p>	
<p><b>Adopción:</b> Métodos de análisis y criterios de rendimiento de los métodos de análisis para disposiciones de las normas del Codex, REP24/MAS, párrafos 20 i), 23 i) y 26 i), Apéndice II, Parte 1.</p> <p>Colombia sugiere incluir la referencia del método de análisis AOAC 981.10, el cual es específico para la determinación de proteína en carne cruda. Dado que las características del proceso de digestión se adaptan para la determinación de proteína en otros derivados cárnicos, consideremos importante incluir la citada metodología para estas matrices de alimentos.</p> <p><b>Adopción:</b> Inclusión de una lista de factores de conversión de nitrógeno a proteínas como anexo a la norma CXS 234, REP24/MAS, párrafo 76 i), Apéndice II, Parte 3.</p> <p>No hay comentarios adicionales.</p> <p>Colombia esta de acuerdo con la información de los factores de conversión de nitrógeno a proteína, la cual es coherente con los encontrados en la literatura , asi como los empleados en el Laboratorio Nacional de Referencia de nuestro país.</p>	<b>Colombia</b>
<p><b>Adopción:</b> Métodos de análisis y criterios de rendimiento de los métodos de análisis para disposiciones de las normas del Codex, REP24/MAS, párrafos 20 i), 23 i) y 26 i), Apéndice II, Parte 1.</p>	<b>Costa Rica</b>

<p>Costa Rica apoya la adopción de los Métodos de análisis y criterios de rendimiento de los métodos de análisis para disposiciones de las normas del Codex</p> <p><b>Adopción:</b> Inclusión de una lista de factores de conversión de nitrógeno a proteínas como anexo a la norma CXS 234, REP24/MAS, párrafo 76 i), Apéndice II, Parte 3.</p> <p>Costa Rica apoya la adopción de la Inclusión de una lista de factores de conversión de nitrógeno a proteínas como anexo a la norma CXS 234</p>	
<p>El país está de acuerdo en apoyar la adopción.</p>	<b>Ecuador</b>
<p>Egypt appreciates the work which done by CCMAS43 and agrees on the adoption of the following methods of analysis and sampling by CAC 47.</p> <p>Egypt agrees on the adoption of List of nitrogen to protein conversion factors as an annex to CXS 234</p>	<b>Egypt</b>
<p>Paraguay esta de acuerdo a la aprobación de este documento.</p>	<b>Paraguay</b>
<p><b>Comentario General:</b> El Perú agradece el informe de la 43.<sup>a</sup> reunión del Comité del Codex sobre Métodos de Análisis y Toma de Muestras (CCMAS) (REP24/MAS), el cual será examinado por la Comisión del Codex Alimentarius en su 47.<sup>o</sup> período de sesiones.</p> <p><b>Comentarios Específicos:</b> El Perú ha examinado el informe REP24/MAS y conforme las recomendaciones dada en la CL 2024/76-CAC damos respuesta:</p> <p>Sobre los Métodos de análisis/criterios de rendimiento</p> <p>i. Adopción: Métodos de análisis y criterios de rendimiento de los métodos de análisis para disposiciones de las normas del Codex, REP24/MAS, párrafos 20 i), 23 i) y 26 i), Apéndice II, Parte 1.</p> <p>Perú considera que los métodos de análisis y criterios de rendimiento de los métodos de análisis para disposiciones de las normas del Codex, de informe REP24/MAS, párrafos 20 i), 23 i) y 26 i), Apéndice II, Parte 1, están listos para su adopción.</p> <p><b>Anexo sobre factores de conversión de nitrógeno a proteínas</b></p> <p>i. Adopción: Inclusión de una lista de factores de conversión de nitrógeno a proteínas como anexo a la norma CXS 234, REP24/MAS, párrafo 76 i), Apéndice II, Parte 3.</p> <p>Perú considera que la inclusión de la lista de factores de conversión de nitrógeno a proteínas como anexo a la norma CXS 234, según el informe del periodo de sesiones 43.<sup>o</sup> REP24/MAS, párrafo 76 i), Apéndice II, Parte 3., están listos para su adopción.</p>	<b>Peru</b>
<p>Thailand does not object the adoption of methods of analysis and performance criteria for methods of analysis for provisions in Codex standards, REP24/MAS, paragraph 20(i), 23(i) and 26(i), Appendix II, Part 1 and the list of nitrogen to protein conversion factors as an annex to CXS 234, REP24/MAS, para 76(i), Appendix II, Part 3.</p>	<b>Thailand</b>
<p>Infant formula - The calculation of the protein content of infant formulas (based solely on milk protein) prepared ready for consumption to be based on N x 6.38 unless a scientific justification is provided for the use of a different conversion factor for a particular product. The value of 6.38 is generally established as a specific factor appropriate for conversion of nitrogen to protein in other milk products, and the values of:</p> <p>5.71 as a specific factor for conversion of nitrogen to protein in other soy, Wheat and/or Tempe products.</p> <p>6.25 as a specific factor for conversion of nitrogen to protein in other Maize, Quinoa, Gochujang and/or Sorghum products.</p>	<b>United Arab Emirates</b>

<p>Justifications:</p> <ul style="list-style-type: none"> <li>- The infant formula which also known as baby formula or milk formula is usually made from cows' milk that has been treated to make it more suitable for babies.</li> <li>- The infant formulas mostly contain purified cow's milk whey and casein as a protein source, a blend of vegetable oils as a fat source, lactose as a carbohydrates source and a vitamin-mineral mix.</li> <li>- The above-mentioned infant formulas were developed for normal healthy infants and not for infants diagnosed with intolerant of cow-milk protein, in case of formulas were developed for infant's intolerant of cow-milk protein, Soy-based formulas may be the alternatives.</li> </ul> <p>Regarding the invitation to submit comments regarding whether the methods of analysis, performance criteria and annex on NCF are ready for adoption or not. United Arab Emirates, UAE consider that the methods of analysis, performance criteria and annex on NCF are ready for adoption with the mild comments regarding the PART 3: NITROGEN TO PROTEIN CONVERSION FACTORS FOR COMMODITIES APPROVED BY COMMODITY COMMITTEES. United Arab Emirates, UAE propose to review and rephrase the following phrase: Infant formula - The calculation of the protein content of infant formulas prepared ready for consumption may be based on N x 6.25 unless a scientific justification is provided for the use of a different conversion factor for a particular product. The value of 6.38 is generally established as a specific factor appropriate for conversion of nitrogen to protein in other milk products, and the value of 5.71 as a specific factor for conversion of nitrogen to protein in other soy products.</p>	
<p>The United States appreciates the opportunity to submit comments to CL 2024/76 CAC, Request for comments on methods of analysis/performance criteria and annex on nitrogen conversion factors submitted by the 43rd Session of the Codex Committee on Methods of Analysis and Sampling for adoption by the 47th Session of the Codex Alimentarius Commission.</p> <p>From our review of the Appendix II of REP24/MAS, the United States notes that there are several inconsistencies with the various nitrogen-to-protein conversion factors (NCF) listed in Appendix II with other related Codex commodity standards. The NCF values should be consistent among commodities and their related products since proteins do not change regardless of processing or removal of oil, carbohydrates, and/or starch.</p> <p>At CCMAS43, the Committee recommended a series of follow up actions for commodity committees and the CAC Secretariat, in the case where the commodity committee is adjourned, to identify and report the proposed nitrogen conversion factors to CCMAS and/or confirm revocation to facilitate the endorsement process. The United States therefore recommends that Appendix II of REP24/MAS not be adopted by CAC at this time until these inconsistencies are resolved, and these actions are completed by commodity committees and the CAC secretariat.</p> <p>Below, the United States notes the specific areas that need to be further reviewed for consistency and correction.</p> <p>In summary, the United States recommends that these inconsistencies with the NCF between the Appendix II and the commodity standards and other errors be remedied before CAC47 adopts Appendix II REP24/MAS.</p> <ul style="list-style-type: none"> <li>• Appendix II of REP24/MAS states, in part, under Infant formula, "...and the value of 5.71 as a specific factor for conversion of nitrogen to protein in other soy products." This statement also appears the Standard for Infant Formula and Formulas for Special Medical Purposes Intended for Infants (CXS 72-1981). However, this statement contradicts with the General Standard for Soy Protein Products (CXS 175-1989), which indicates that the NCF is 6.25.</li> </ul>	<p><b>USA</b></p>

<ul style="list-style-type: none"> <li>• Appendix II of REP24/MAS lists, “Products produced by separation from wheat and soya grains and flours of certain non-protein constituents (starch, other carbohydrates) – 6.25.” This description does not refer to specific commodities and instead leaves them open to interpretation by the reader. Therefore, this description should be eliminated and only commodities specific to Codex standards should be listed in Appendix II.</li> <li>• Appendix II of REP24/MAS lists an NCF value of 5.71 for wheat and wheat protein products, whereas the Standard for Wheat Flour (CXS 152-1985) provides an NCF of 5.7 and an NCF of 6.25 is given in the Standard for Wheat Protein Products including Wheat Gluten (CXS 163-1987).</li> <li>• Appendix II of REP24/MAS gives an NCF of 5.71 for “soya and non-ferment soybean products,” but the General Standard for Soy Protein Products (CXS 175-1989) gives an NCF of 6.25 and an NCF of 5.71 is given in both the Regional Standard for Non-Fermented Soybean Products (CXS 322R-2015) and the Standard for Infant Formula and Formulas for Special Medical Purposes Intended for Infants (CXS 72-1981).</li> <li>• The term, “Soya” is not included in the Regional Standard for Non-Fermented Soybean Products (CXS 322R-2015). Soya is another term for soybean and Codex has no established standard for soybean. The currently accepted NCF for soybean in international trade is 6.25.</li> </ul>	
<p>EUVEPRO appreciates the opportunity to provide feedback to the list of nitrogen to protein conversion factors as an Annex to CXS 234, REP24/MAS, para 76(i), Appendix II, Part 3.</p> <p>EUVEPRO holds that the table format is clearer than the list, however the current proposal presents inconsistencies that do not make it ready for adoption.</p> <p>If a table is adopted, it should be thoroughly checked for correctness.</p> <p>- Name for “protein”</p> <p>The methods used for protein determination are all Kjeldahl and/or Dumas based. Kjeldahl and Dumas methods measure nitrogen from all sources, which is then converted to protein using a nitrogen to protein conversion factor (the NCF). The Kjeldahl or Dumas analysis is therefore “crude protein” (all sources of nitrogen) rather than “protein”/“true protein”, which excludes non-protein nitrogen (not possible to do with Kjeldahl/Dumas). This issue is particularly relevant when protein/crude protein and different NCF are used for essentially the same substances in different Codex standards (as for wheat flour and wheat protein products).</p> <p>- NCF for tempe and tahena</p> <p>We disagree with these proposals. “Vegetable proteins” as above have a NCF of 6.25 as do many other vegetable sourced proteins, many soya protein products also have a NCF of 6.25, although 5.7(1) is used for some regional specialities.</p> <p>- Different decimal places were observed in the factor for vegetal protein – 5.7 and 5.71</p> <p>It is sensible to rationalise on 5.71 for this NCF. It is also consistent with the 2 decimal place numbering used for other NCFs (6.25 and 6.38).</p> <p>- Wheat protein</p> <p>Solubilised wheat protein is included in CXS 163-1987 and has protein name and NCF consistent with other wheat proteins in this standard. The mismatch is with the standard for wheat flour where a different term for protein and different CF are used (also noted above).</p> <p>NITROGEN TO PROTEIN CONVERSION FACTOR (Nx) FOR COMMODITIES (Annex I)</p>	<p><b>European Vegetable Protein Association</b></p>

<p>- Vegetable Protein Products (VPP)</p> <p>The vegetable protein products standard is also incorrect: CXS 234-1999 refers to “protein” with CF 6.25 whereas CXS 174-1999 refers to “crude protein” (same NCF).</p> <p>- Wheat flour</p> <p>The wheat flour entry is correct for the product standard. CXS 234-1999 currently does not include the NCF (not included in the draft table) that is included in the wheat flour standard (NCF 5.7).</p> <p>- Wheat protein products (WPP)</p> <p>The wheat protein products entries are incorrect: 5.7 is not stated in either of the two standards (CXS 163-1987 or CXS 234-1999): CXS 163-1987 refers to crude protein only with NCF 6.25. CXS 234-1999 does not provide a NCF but does use the term crude protein.</p>	
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