



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON FATS AND OILS**

Twenty-Eighth Session

Kuala Lumpur, Malaysia

19 – 23 February 2024

**PROPOSED DRAFT AMENDMENT/REVISION TO THE STANDARD FOR FISH OILS (CXS 329-2017):
INCLUSION OF CALANUS OIL**

(Prepared by the Electronic Working Group chaired by Norway)

(At Step 3)

Codex Members and Observers wishing to submit comments, at Step 3, on Appendix 1 of this proposed draft amendment/revision to the Standard for fish oils (CXS 329-2017) should do so as instructed in CL 2023/62/OCS-FO available on the Codex webpage/Circular Letters 2023: <https://www.fao.org/fao-who-codexalimentarius/resources/circular-letters/en/>

INTRODUCTION AND TERMS OF REFERENCE

1. The 27th Session of the Codex Committee on Fats and Oils (CCFO27) held virtually, agreed to submit for approval by CAC45 the proposal for new work on the inclusion of Calanus oil as a named fish oil in the *Standard for fish oils* (CXS 329-2017).
2. The Committee also agreed to establish an Electronic Working Group (EWG), chaired by Norway, working in English only, to prepare the proposed draft revision of the *Standard for fish oils* (CXS 329-2017) for circulation for comments at Step 3 and consideration by CCFO28, subject to CAC45 approval of the new work.
3. In addition, the report of the EWG should be made available to the Codex Secretariat at least three months before CCFO28.
4. The new work was approved by CAC45.

PARTICIPATION AND METHODOLOGY

5. The EWG was established in 2022 with the invitation from Norway to all Codex Members and Observer Organizations. Representatives from 11 Codex Member Countries¹, and 2 Observer Organizations², expressed interest in participating.
6. The EWG worked from March 2022 to February 2023, with two rounds of discussions. The proposed revision of the *Standard for fish oils* (CXS 329-2017) was circulated for comments in March 2022, together with a call to specify points which may need further deliberation and clarification, as well as additional or new information pertaining to Calanus oil.

SUMMARY OF DISCUSSION

7. There was general agreement on the items as discussed below:
 - i. *Safety of ingredients*, - no concerns were raised on the safety of the ingredients, however, one member suggested that maximum levels of Calanus oil in food supplements be included in the standard. It was clarified that the scope of the *Standard for fish oils* (CXS 329-2017) does not include determining maximum levels in food supplements, and the Chair of the EWG therefore suggested not to include this proposal. There was no further discussion on this.

¹ China, Dominican Republic, Egypt, India, Mexico, Norway, Poland, Republic of Korea, Saudi Arabia, Thailand, and USA

² Global Organization for EPA and DHA Omega-3s (GOED) and United States Pharmacopeial Convention (USP)

- ii. *Description (Section 2.1.6) Calanus oil* – EWG agreed to include a statement *Calanus oil is primarily composed of wax esters and differs from traditional fish oils which are primarily composed of glycerides of fatty esters. This should be specified, in line with additional information provided for krill oil.*
- iii. *GLC ranges of fatty acid composition (Section 3.1)* – The EWG derived the proposal for GLC ranges of fatty acid composition basing on the analysis of 22 different batches of data. Further the EWG agreed to harmonize the presentation of the fatty acid composition of Calanus oil to those in the Codex Standard for named oils. The fatty acid composition of Calanus oil was originally presented as g/100 g oil, while the other named oils in the Standard are presented as “percentage of total fatty acids”. There was agreement in the EWG s to do so, and subsequently the table was updated.
- iv. *Other essential compositional criteria (Section 3.2)*
 - Content of wax esters – The EWG noted that Calanus oil consists mainly of wax esters, which clearly distinguishes calanus oil from other fish oils. Based on this consideration, it was agreed that the minimum content of wax esters should be included as an essential compositional criterion for calanus oil.
 - The EWG further noted that due to the high amount of wax esters, Calanus oil has similar properties as krill oil with regard to acid value and oxidation parameters, and agreed that paragraph 3 of Section 3.2 should include aspects related to Calanus oil. The paragraph was amend accordingly as indicated in appendix I.
- v. *Methods of analysis and sampling (Section 8)* – The method for determination of wax content AOCS Ch 8-02 was added and it is recommended that the method be forwarded to CCMAS for endorsement.

CONCLUSION AND RECOMMENDATION

8. The EWG requests CCFO28 to consider the proposed amendments/revisions to the *Standard for fish oils* (CXS 329-2017) in Appendix I with a view to advance them in the Step process.

APPENDIX I

PROPOSED DRAFT AMENDMENT/REVISION TO THE STANDARD FOR FISH OILS (CXS 329-2017)

INCLUSION ON CALANUS OIL

(Step 3)

Notes on Proposed Revisions to Current Standard:

Bold and underlined: amendment agreed to by all/ majority of members of the electronic working group (consensus)

2. DESCRIPTION

2.1 Named fish oils are derived from specific raw materials which are characteristic of the major fish or shellfish taxon from which the oil is extracted.

2.1.6 Calanus oil is derived from the species *Calanus finmarchicus*. Calanus oil consist mainly of wax esters.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS**3.1 GLC ranges of fatty acid composition (expressed as percentages of total fatty acids)**

Sample of fish oils described in sections 2.1 and 2.3 shall fall within the appropriate ranges specified in Table 1. Supplementary criteria, for example national geographical and/or climatic variations may be considered, as necessary, to confirm that a sample is in compliance with the Standard.

The proposed GLC ranges of the fatty acid composition for calanus oil are to be included Table 1.

Table 1. Supplementary criteria

Fatty acids	<u>Calanus oil (section 2.1.6)</u>
C14:0 Myristic acid	<u>12.7-17.1</u>
C15:0 Pentadecanoic acid	<u>0.1-0.9</u>
C16:0 Palmitic acid	<u>7.9-12.9</u>
C16:1 (n-7) Palmitoleic acid	<u>3.2-8.1</u>
C17:0 Heptadecanoic acid	<u>0.3-1.2</u>
C18:0 Stearic acid	<u>0.4-1.5</u>
C18:1 (n-7) Vaccenic acid	<u>0.3-0.8</u>
C18:1 (n-9) Oleic acid	<u>2.3-4.2</u>
C18:2 (n-6) Linoleic acid	<u>0.7-1.5</u>
C18:3 (n-3) Linolenic acid	<u>1.1-3.5</u>
C18:3 (n-6) γ-Linolenic acid	<u>ND-0.9</u>
C18:4 (n-3) Stearidonic acid	<u>8.7-19.9</u>
C20:0 Arachidic acid	<u>0.1-1.2</u>
C20:1 (n-9) Eicosenoic acid	<u>2.1-5.6</u>
C20:1 (n:11) Eicosenoic acid	<u>0.2-0.8</u>
C20:4 (n-6) Arachidonic acid	<u>ND-0.7</u>
C20:4 (n-3) Eicosatetraenoic acid	<u>0.9-2.0</u>
C20:5 (n-3) Eicosapentaenoic acid	<u>10.8-16.8</u>
C21:5 (n-3) Heneicosapentaenoic acid	<u>0.5-0.7</u>
C22:1 (n-9) Erucic acid	<u>ND-0.8</u>
C22:1(n-11) Cetoleid acid	<u>3.1-8.3</u>
C22:5 (n-3) Docosapentaenoic acid	<u>0.5-0.8</u>

Fatty acids	<u>Calanus oil (section 2.1.6)</u>
C22:6 (n-3) Docosahexaenoic acid	<u>7.2-12.3</u>

ND = non-detected, defined as $\leq 0.05\%$

NA = not applicable or available

3.2 Other essential compositional criteria

For calanus oil the content of wax esters shall be at least 80w/w %.

3.3.2 *Fish oils with a high phospholipid concentration of 30% or more such as krill oil (Section 2.1.3) **and oils with a high wax ester concentration of 80% or more such as calanus oil (Section 2.1.6)** shall comply with the following:*

Acid value ≤ 45 mg KOH/g

Peroxide value ≤ 5 milliequivalent of active oxygen/kg oil

8. METHODS OF ANALYSIS AND SAMPLING

Commodity	Provision	Method	Principle	Type
Fish oil	<u>Wax content</u>	<u>AOCS Ch 8-02</u>	Gas Chromatograph	IV