CODEX ALIMENTARIUS COMMISSION

E

Food and Agriculture Organization of the United Nations

World Health Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 9.1 **CX/FO 26/29/9 Add.1**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FATS AND OILS

Twenty-ninth Session

Kuala Lumpur, Malaysia

9 - 13 February 2026

PROPOSALS FOR NEW WORK

DISCUSSION PAPER - REVISION TO THE *STANDARD FOR NAMED VEGETABLE OILS* (CXS 210-1999) TO INCLUDE SHEA BUTTER

(Submitted by the Netherlands)

Background

1. The 28th session of the Codex Committee on Fats and Oils (CCFO28) agreed to issue a circular letter (CL) calling for proposals for new work including amendments to existing standards. The letter invited both Members and Observers to submit proposals via Codex Contact Points. Proposals should include both a discussion paper and a project document for discussion at the 29th session (in 2026).

Issues

2. The FAO/WHO Coordinating Committee for Africa (CCAFRICA), at its 22nd Session, agreed to forward the draft regional standard for unrefined shea butter to the Codex Alimentarius Commission (CAC) for adoption. CAC40 adopted the *Regional standard for unrefined shea butter (Africa)* (CXS 325R-2017).

3. The refined shea butter segment is projected to register a Compound Annual Growth Rate (CAGR) of 8.2% from 2025 to 2035. The global shea butter market size was valued at USD 3.1 billion in 2025 with projections to achieve USD 6.8 billion by 2035.

4. The lack of an international quality standard for refined shea butter makes the introduction of refined shea butter in a broad range of food products difficult, in new markets in Asia and South America.

5. A new standard, when elaborated, would enable Codex Member countries and the food industry to appropriately characterize, name, and market shea fat, both refined and unrefined, globally.

6. The proposed new work will build on the already existing CXS 325R-2017 through revising the *Standard for named vegetable oils* (CXS 210-1999) to include the requirements for both refined and unrefined shea butter. The work will also take into account the available scientific data, and where possible some of the existing provisions in CXS 325R-2017 will be revised.

7. The proposed new work will be in line with the mandate of the Codex Alimentarius to revise, where appropriate, the standards and related texts in the light of new scientific knowledge and other relevant information, to represent the global variability of foodstuffs and avoid further restrictions on trade than necessary.

8. The key issues are:

   (a) **Harmonisation of names/nomenclature for shea butter**. It is expected that the proposed Codex standard will establish a uniform name as ‘shea butter’ instead of the many names currently used in trade like ‘shea fat’ or ‘shea oil’.

   (b) **The inclusion of provision for refined shea butter**.

   (c) **Review of shea stearin and olein**: it could be relevant to broaden the scope and add shea stearin and shea olein. Mainly shea stearin is used in food and confectionery application.

Parameters concerned

9. In order to build on the existing CXS 325R-2017, the work will require revision to a number of quality parameters, including the following:

Quality Parameter	Value	Source
Iodine Value (g I_2/100 g)	39.21 – 45.6	Okullo et al. (2010)[1];
Saponification Value (mg KOH/g)	160 – 198	Gratie et al. (2019)[2]
Peroxide Value (meq O_2/kg)	2.10 – 9.84	
Unsaponifiable matter (g/kg and % m/m)[3]	2.0 – 9.0 % m/m	FAO Codex CXS 325R-2017 Kumar Metal Industries[4]

10. In Annex 1 there are concept tables with different parameters. This work approach will aim to revise these parameters according to the trade standards that are needed.

Sterol composition of crude Shea Butter (Desmethylsterols)

11. Data on the desmethylsterol profile of crude shea butter are exceedingly scarce and generally based on indirect estimates. One report indicates that crude shea oil contains approximately 4 wt % total sterols, whereas this value may increase to as much as 12 wt % in the olein fraction derived from shea butter.

Conclusion

12. As the focus and needs of establishing a Codex standard for shea butter is observed in international trade, this proposed revision to CXS 210-1999 will serve as a proper response to the need of promoting international trade in shea butter trade beyond the African region.

Recommendation

13. CCFO29 is invited to consider forwarding the project document in the Appendix to CAC49 for approval as new work.

[1] Okullo, J.B.L., Omujal, F., Agea, J.G., Vuzi, P.C., Namutebi, A., Okello, J.B.A., & Nyanzi, S.A. (2010). Physico-Chemical Characteristics of Shea Butter (Vitellaria paradoxa C.F. Gaertn.) Oil from the Shea District of Uganda. African Journal of Food, Agriculture, Nutrition and Development, 10(1), 2070–2084. https://doi.org/10.4314/ajfand.v10i1.51484

[2] Garti, H., Agbemafle, R., & Mahunu, G.K. (2019). Physicochemical Properties and Fatty Acid Composition of Shea Butter from Tamale, Northern Ghana. UDS International Journal of Development, 6(3), 35–40. https://doi.org/10.47740/389.UDSIJD6i

[3] FAO Codex CXS 325R-2017 (https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/)

[4] Shea Butter: Properties and applications - Kumar Metal Industries

APPENDIX

PROPOSAL FOR NEW WORK - REVISION TO THE *STANDARD FOR NAMED VEGETABLE OILS* (CXS 210-1999) TO INCLUDE SHEA BUTTER (REFINED AND UNREFINED)

PROJECT DOCUMENT

(Submitted by the Netherlands)

A. PURPOSE AND SCOPE OF THE STANDARD

1. The purpose and scope of this new work is to revise the *Standard for named vegetable oils* (CXS 210-1999) to include shea butter derived from the nuts of the shea tree (*Vitellaria paradoxa*, formerly *Butyrospermum parkii*). The work will include defining the requirements for both refined and unrefined shea butter.

2. Currently, there is an existing *Regional standard for unrefined shea butter (Africa)* (CXS 325R-2017) whose scope is limited to unrefined product and it is considered as a "regional agreement" which has limited influence on other regions. A revision to CXS 210-1999 to include shea butter would enable Codex Member countries and the food industry to appropriately characterize, name, and market shea butter, into both refined and unrefined categories, globally.

3. The current regional standard CXS 325R-2017 specifies the quality requirements for unrefined shea butter, however the use of refined shea butter in the food industry is on the rise and therefore needs further specification. The refining process removes the scent and color of the product which makes the fat more suitable for food applications where a bland taste and clear color is required.

B. RELEVANCE AND TIMELINESS

4. The global shea butter market size is valued at USD 3.1 billion in 2025[5] with projections to reach USD 6.8 billion by 2035, demonstrating a compound annual growth rate (CAGR) of 8.2% from 2025 to 2035[6]. In terms of grade, the shea butter market is dominated by refined shea butter.[7] Increasing demand for cocoa butter substitutes, the rising consumption of cocoa and bakery products, and the growth of vegan movement, are expected to drive the growth of the market for shea over the forecast period 2025-2035.

5. The lack of an international standard of refined shea butter makes the introduction of refined shea butter in a broad range of food products difficult. Especially in new markets in Asia and South America, a fat, if not listed in the *Standard for named vegetable oils* (CXS 210-1999), is perceived as not acceptable or of lower value.

6. A Codex standard on shea butter will facilitate the trade of this commodity worldwide directly from Africa through supporting increased quality and trade as well as promote investment in refining facilities in Africa which was previously undertaken in Europe.

C. MAIN ASPECTS TO BE COVERED

7. The main aspect to be covered will include:

    a) Section 2.1 Product definition for refined shea butter and unrefined shea butter[8]:

Refined shea butter is vegetable fat derived from the kernels of the shea nut (nut kernels) from the tree scientifically known as *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum*, *Butyrospermum parkii*), from the *Sapotaceae* family. Shea butter is obtained from the kernel of the shea nut fruit. The shea nut fruits undergo several processes i.e. de-pulping (by fermentation or manual peeling), boiling, drying, de-shelling, winnowing and sorting to obtain the kernels. Extraction of shea butter from the kernels can then occur mechanically (traditional with stones or by mechanical press) and/or chemically, via the use of hexane as extraction solvent. The shea butter prepared by the chemical method, must be refined before it is consumed. Mechanically extracted shea butter is often used in its unrefined state, but it can also be refined depending on the intended application. The refining process involves steps such as bleaching and deodorization to remove its natural color, odor, and impurities. This results in a more neutral, consistent product suitable for use in food, cosmetics and pharmaceuticals.[9]

Unrefined shea butter is the oleaginous material obtained from the nut kernel of the *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum, Butyrospermum parkii*), from the *Sapotaceae* family by

[5] https://www.futuremarketinsights.com/reports/shea-butter-market
[6] Shea Butter Market Size & Outlook, 2030
[7] Raw and Unrefined - Shea butter market outlook
[8] fao.org/fao-who-codexalimentarius/sh-proxy/tr/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B325R-2017%252FCXS_325Re.pdf
[9] https://www.sciencedirect.com/topics/veterinary-science-and-veterinary-medicine/shea-butter

manual or mechanical methods. It is obtained through a thermal process or cold pressed. It can be purified by washing with water, settling, filtering, and centrifuging.

b) Quality and compositional characteristics

c) Contaminants and related food safety issues

d) Organoleptic characteristics

e) Purity criteria

f) Food additives

g) Labelling

h) Analytical methods

8. Shea butter is a cherished natural fat used in food, skincare, but its characteristics can vary significantly depending on where it's sourced. The two main types—West African (Paradoxa) and East African (Nilotica) shea butter—come from different subspecies of the shea tree and offer distinct textures, scents, benefits, and even culinary uses. Both Latin names should be included in the standard.

D. RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES

9. According to the Codex Strategic Plan (2026-2031) the proposed revision fits with the strategic goals:

10. **Strategic Goal 1: Respond to Members' needs for protecting the health of consumers and ensuring fair practices in the food trade in an evolving global landscape by developing science-based standards and related texts**

- Contribute to protecting consumer health and promote fair practices in the food trade by setting international, science-based food safety and quality standards.
- Food system transformation: growing role of shea butter in international food systems highlights the urgency of regulatory clarity. Including it in Codex standards addresses a critical and emerging issue, enabling global markets to respond effectively to rising demand and trade dynamics. This revision is a proactive step toward ensuring fair practices and supporting market expansion.
- Codex standards are built on rigorous scientific principles and risk analysis. Defining quality criteria and validated analytical methods for shea butter ensures that products meet safety standards and maintain consistency, safeguarding consumers across diverse markets.

11. **Strategic Goal 2: Enhance Codex work management systems and practices that support the effective and** efficient **development of standards and related texts**

- We propose a proactive, open and transparent process for participation of all members.
- This proposed revision fosters broader participation by engaging African nations and other stakeholders in the standard-setting process. It empowers producers by involving them directly in shaping the quality benchmarks for both refined and unrefined shea butter, ensuring that their voices and expertise are reflected in global standards.

12. **Strategic Goal 3: Strengthen relationships with relevant international organizations, promoting a coordinated approach to address global challenges**

- One ecosystem-based approach: the shea tree fits well in an environment to provide shade for other crops. Supporting demand and production contributes to economic development. We are suggesting to work with CBI (centre for supporting export) and the Global Shea Alliance (GSA).

13. **Strategic Goal 4: Maximize the impact of Codex by increasing the visibility and use of standards**

- Inclusion in the Codex framework will elevate shea butter's status on the international stage, increasing its recognition among food manufacturers and regulatory authorities. This visibility is expected to drive trade, unlock new markets, and generate significant economic opportunities for producing regions—particularly in Africa, where the shea industry supports millions of livelihoods.
- We aim to contribute to the One Health approach by also considering environmental and sustainability aspects.

E. INFORMATION ON THE RELATION BETWEEN THE PROPOSAL AND OTHER EXISTING CODEX DOCUMENTS AS WELL AS OTHER ONGOING WORK

14. The **Global Shea Alliance** (GSA) has been for years the most prominent supporting and promoting organization of shea butter worldwide. The GSA is a non-profit industry association with 663 members from 38 countries including women's groups, brands and retailers, suppliers and non-governmental organisations (NGOs). Through public-private partnership, the GSA promotes industry sustainability, quality practices and standards, and demand for shea in food and cosmetics.[10]

15. The work will build on the existing CXS 325R-2017 (amended in 2020 and 2022) developed by CCAFRICA.

F. IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

16. None identified at the moment. In case it is identified during the process of developing the standard, it will be requested from FAO and WHO as appropriate.

G. IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT TO THE STANDARD FROM EXTERNAL BODIES SO THAT THIS CAN BE PLANNED FOR

17. Relevant standards development organisations (SDOs), such as ISO, AOCS, are expected to participate in the review of the Codex standard.

18. Relevant private sector organizations will be consulted to share existing standards.

H. THE PROPOSED TIME-LINE FOR COMPLETION OF THE NEW WORK, (INCLUDING THE START DATE, THE PROPOSED DATE FOR ADOPTION AT STEP 5, AND THE PROPOSED DATE FOR ADOPTION BY THE COMMISSION; THE TIME FRAME FOR DEVELOPING A STANDARD SHOULD NOT NORMALLY EXCEED FIVE YEAR)

19. It is expected that the development of this standard would be conducted in two CCFO sessions or less (effective CCFO29), subject to the approval of new work by CAC.

Consideration of the proposal for new work CCFO29	2026
Approval of new work by CAC49	2026
Consideration of the draft standard by CCFO30	2027
Approval of the revisions to CXS 210-1999 by CAC50	2027

I. CRITERIA FOR THE ESTABLISHMENT OF WORK PRIORITIES: CRITERIA APPLICABLE TO COMMODITIES

Volume of production and consumption in individual countries and volume and pattern of trade between countries and international or regional market potential

20. The global shea butter market has experienced significant growth in recent years, driven by increasing demand across various industries. The global shea butter market size was valued at USD 3.1 billion in 2025 with projections to achieve USD 6.8 billion by 2035, demonstrating a compound annual growth rate (CAGR) of 8.2% from 2025 to 2035.

- **Unrefined Shea Butter:** This segment continues to dominate the market due to consumer preference for less processed oils, which retain more natural nutrients and benefits[11].
- **Refined Shea Butter:** Projected to register a CAGR of **8.2%** from 2025 to 2035, driven by its longer shelf life and versatility in various applications[12].

21. **Drivers of Market Growth:**

- **Industries:** Cocoa butter is used in chocolates and confectioneries as a fat source, to give the products luster, texture, and snap. However, cocoa butter is witnessing supply constraints due to the declining yields of cocoa in major producing countries. Therefore, the price of cocoa butter is increasing rapidly, which is compelling manufacturers of chocolates and confectioneries to opt for other alternatives or equivalents to cocoa butter. Furthermore, while some regions present timid demand for chocolate, growing economies and globalization have increased its consumption in the recent past. Over 50% of chocolate consumption occurs in Europe, and around 20% in the United States, putting additional pressure on the cocoa butter

[10] Global Shea Alliance. Available at: https://www.globalshea.com/about?page=MzE2Njk3MDQ0LjUxOA==/Who%20we%20are
[11] Upfield press release (2021); Available at: https://upfield.com/press/upfield-joins-the-global-shea-alliance/
[12] Honfo, F. G., et al. (2014), Crit Rev Food Sci Nutr, 54(5), pp. 673-86.

market in favor of refined shea butter in Europe. Asian countries are emerging as significant chocolate consumers due to changing socio-economic demographics. The growing demand for chocolate is fueling the demand for fat sources such as shea butter. Shea butter is used to provide and enhance the texture, consistency, and other properties of chocolate, and thus, is anticipated to witness proliferating demand with the ever-growing chocolate market.

- The trend of using refined shea butter is increasing also in the bakery sector as a substitute for other edible vegetable fats and oils, which is further expected to boost the scope of the market. Shea butter and its fractions are used as an ingredient for margarine and shortening for the manufacturing of several bakery products such as dough, puff pastries, croissants, and others. The production of bakery products requires often solid fats. Butter or a process of hydrogenation of liquid oils is used to harden vegetable oil and obtain margarines. However, nowadays both are perceived as non-sustainable and unhealthy by the consumers. This perception has pushed manufacturers towards using shea butter for the processing of margarines and shortenings for bakery applications.
- In Europe and in USA, new product developments which make veganism both possible and palatable helped the introduction of new branded premium products where shea is a key component since shea butter is seen as being in line with the growing demand for sustainable and ethical products.
- **Production:** in terms of volumes, demand will certainly spur the growth but being that shea is an agro-managed tree crop of plants taking many years to bear fruits for the first time, the price of the shea butter is likely to increase more rapidly than its production, as shown in the figure below.

Figure 1: Global Shea Butter market trends in volume and value (2015–2025)

Regional Insights[13]:

- **Europe:** Accounts for over **30%** of global market revenue, with significant consumption in the food industry.
- **North America:** Holds a **28.93%** share of global market revenue, with growing applications in both cosmetics and food products.
- **Asia Pacific:** Expected to grow at a CAGR of **8.7%** from 2025 to 2030, driven by initiatives to introduce shea butter to cosmetics and health sectors in countries like Japan, South Korea, and China.

22. The graphs below show the export value and volume of shea nuts from 2021 to 2023 to four major destinations: China, the Netherlands, Germany, and the USA.

[13] Jasaw G.S. et al. (2015). Sustainability 7:3592-3614

23. In recent years opportunities for shea butter, shea stearin and shea olein have also exponentially grown since they have become valuable ingredients in plant butter alternative products (meat and dairy alternatives, mainly), as well as in common vegan and vegetarian products[14,15]. The shea stearin production is increasing due to rising demand in the food and cosmetics industries, where it's used as a cost-effective alternative to cocoa butter and a natural emollient. Regulatory approvals like the FDA's GRAS status and improved processing technologies have further boosted its use in various applications.

Production

24. Shea butter is the fat from the shea tree. Shea (*Vitellaria paradoxa,* formerly *Butyrospermum parkii*) is an agro-managed tree crop from the *Sapotaceae* family, which is found in the wild, but also growing in parklands and farmlands in large parts of Sub-Saharan Africa. The shea tree provides fruits for direct consumption and is an important source of nutrients and energy for local inhabitants. The shea seeds/kernels are isolated from the fruit bodies, which are collected from the ground in accordance with good practices for shea fruit harvesting and processing and are then typically processed by roasting or boiling and sold as kernels or further processed into crude, or unrefined shea butter[16,17]. Hand or mechanically processed crude shea butter is sold locally as food mainly regionally.

25. Outside of Africa, crude shea butter is consumed in food mainly once refined. Refining of shea butter occurs locally or primarily in Europe. The refining process removes the scent and color of the product which makes the fat more suitable for food applications where a bland taste and clear colour is required.

Shea trees

Shea nuts

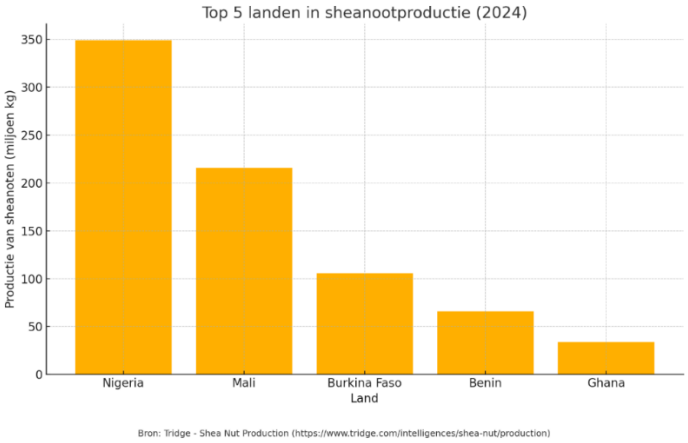
Unrefined shea butter

Refined shea butter

26. Since the 1960s, refined shea butter and its fractions have been used in Europe as food ingredients, mainly in chocolate products. The fractioned product shea stearin is most likely the most important product derived from shea butter since it's used as a cocoa butter equivalent (CBE) and cocoa butter improver (CBI) in the chocolate and confectionary industry[18].

[14] Addaquay, J. (2004) Report No. 3, Washington, DC: USAID.
[15] CBI - The European market potential for shea butter for food
[16] Tridge - Shea Nut Production
[17] Okullo, J.B.L., Omujal, F., Agea, J.G., Vuzi, P.C., Namutebi, A., Okello, J.B.A., & Nyanzi, S.A. (2010). Physico-Chemical Characteristics of Shea Butter (Vitellaria paradoxa C.F. Gaertn.) Oil from the Shea District of Uganda. African Journal of Food, Agriculture, Nutrition and Development, 10(1), 2070–2084. https://doi.org/10.4314/ajfand.v10i1.51484

27. Major producers include **Nigeria**: 348,9 million kg, **Mali**: 215,7 million kg, **Burkina Faso**: 105,7 million kg, **Benin**: 65,9 million kg, **Ghana**: 33,6 million kg. The bar chart below shows the top five countries where shea nut production was highest in 2024[19].



[18] Garti, H., Agbemafle, R., & Mahunu, G.K. (2019). Physicochemical Properties and Fatty Acid Composition of Shea Butter from Tamale, Northern Ghana. UDS International Journal of Development, 6(3), 35–40. https://doi.org/10.47740/389.UDSIJD6i

[19] Tridge - Shea Nut Production

Annex 1: Information on Quality factors to be elaborated

Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids) of CXS 210-1999.

Fatty Acid	Common Name	Percentage Range (%)	Source
Caproic acid (C6:0)	Caproic	<0.1	
Caprylic acid (C8:0)	Caprylic	<0.1	WUR, 2019 [20]
Capric acid (C10:0)	Capric	<0.1	
Lauric acid (C12:0)	Lauric	< 1	
Myristic acid (C14:0)	Myristic	< 0.7	*Regional standard for unrefined shea butter (Africa)* (CXS 325R-2017)[21]
Palmitic acid (C16:0)	Palmitic	2–10	
Palmitoleic acid (C16:1)	Palmitoleic	< 0.3	
Margaric acid (C17:0)	Margaric	0.1	WUR, 2019
Heptadecenoic acid (C17:1)	Heptadecenoic	0.1	
Stearic acid (C18:0)	Stearic	25–50	
Oleic acid (C18:1)	Oleic	32–62	*Regional standard for unrefined shea butter (Africa)* (CXS 325R-2017)
Linoleic acid (C18:2)	Linoleic	1–11	
Linolenic acid (C18:3)	Linolenic	< 1	
Arachidic acid (C20:0)	Arachidic	0–3.5	Shea Butter: Properties and applications - Kumar Metal Industries[22]
Gadoleic acid (C20:1)	Gadoleic	<0.1	
C20:2	Eicosadienoic	<0.1	WUR, 2019
C22:0	Behenic	0.1	
C22:1	Erucic	<0.1	
C22:2	Docosadienoic	<0.1	

28. The new work proposed will follow the Codex structure and will include the quality requirements for shea butter:

[20] Hulshof, Paul J.M. (2019) Fatty acid composition of selected fats and oils. Wageningen University

[21] FAO Codex CXS 325R-2017 (https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/)

[22] Shea Butter: Properties and applications - Kumar Metal Industries

Table 2: Quality requirements for refined and unrefined shea butter

Parameter	**Refined Shea Butter**	**Source**	**Unrefined Shea Butter**	**Source**
Scope	Refined shea butter is suitable for food applications, due to its neutral odor and colorless nature	Global Shea Alliance	Unrefined shea butter is primarily for culinary applications, maintaining its natural scent and yellowish to ivory color	Codex Alimentarius CXS 325R-2017
Quality and composition characteristics	Refined shea butter is deodorized, bleached, and filtered. It has a fatty acid composition similar to unrefined shea butter, notably high in oleic (32–62%) and stearic (25–50%) acids. Moisture and volatile matter typically <0.1%.	Global Shea Alliance	Unrefined shea butter retains a fatty acid profile high in oleic (32–62%) and stearic (25–50%) acids. Moisture and volatile matter typically ≤ 0.2%	Codex Alimentarius CXS 325R-2017.
Contaminants and food safety related issues	Heavy metals, pesticide residues, microbial contamination, and aflatoxins should be below MRL's or detectable limits	Global Shea Alliance; FAO/WHO guidelines.	Must be free from pathogenic microorganisms, aflatoxins, heavy metals, and pesticides. Limits defined by FAO/WHO Codex guidelines.	Codex Alimentarius CXS 325R-2017
Organoleptic characteristics	Neutral odor, tasteless, and pale white appearance. Ideal for applications where no shea odor or taste is desired	Global Shea Alliance	Characteristic nutty odor, slightly smoky or earthy scent, ivory or pale-yellow color, solid at room temperature with creamy consistency	Codex Alimentarius CXS 325R-2017
Purity criteria	Peroxide value ≤ 5 meq O2/kg; acid value ≤ 0.6 mg KOH/g; impurities ≤ 0.05% m/m; unsaponifiable matter typically ≤ 10%	Global Shea Alliance	Peroxide value ≤ 15 meq O2/kg; acid value ≤ 4.0 mg KOH/g; unsaponifiable matter typically 1 – 19 % m/m (high due to natural sterols and vitamins); impurities ≤ 0.2%	Codex Alimentarius CXS 325R-2017
Food additives	Permitted additives include antioxidants (e.g., tocopherols) to enhance stability, complying with the *General Standard for Food Additives* (GSFA) (CXS 192-1995).	Global Shea Alliance	No additives permitted in unrefined shea butter to preserve its natural state	Codex Alimentarius CXS 325R-2017
Methods of analysis	Gas chromatography for fatty acid composition, titration for acid value and peroxide value, spectrophotometry for color and impurities, microbial testing according to ISO methods	Global Shea Alliance	To ensure compliance with this quality standard, the samples selected as specified in clause 9 shall be tested in accordance with the appropriate testing procedures	Codex Alimentarius CXS 325R-2017, table included in 8.2 analysis (see also table in Annex 1)

Table 3: Quality characteristics of Shea Butter (draft)

Quality Parameter	Value	Source
Iodine Value (g I_2/100 g)	39.21 – 45.6	Okullo et al. (2010)[23];
Saponification Value (mg KOH/g)	160 – 198	Gratie et al. (2019)[24]
Peroxide Value (meq O_2/kg)	2.10 – 9.84	
Unsaponifiable matter (g/kg and % m/m)[25]	2.0 – 9.0 % m/m	FAO Codex CXS 325R-2017 Kumar Metal Industries[26]

Shea Butter quality compliance assessment (draft)

This document compares typical quality values of shea butter with the specified international standards. It aims to assess whether shea butter complies with common physicochemical quality parameters.

Parameter	Typical Shea Butter Values	Source	Specified Standard	Source
Matter volatile at 105 °C	Not readily available		≤ 0.20 % m/m	
Insoluble impurities	0.02 – 0.2 % m/m	African Journal of Biochemistry Research - shea butter extraction technologies: current status and future perspective	≤ 0.05 % m/m	Codex Alimentarius Commission. Appendix 1 to the Codex Standard for Named Vegetable Oils (CXS 210-1999): Specific Provisions for Shea Butter. FAO, 2022.
Soap content	Not readily available		≤ 0.005 % m/m	
Iron (Fe)	Not readily available		≤ 1.5 mg/kg (refined); ≤ 5.0 mg/kg (virgin)	Kumar Metal Industries
Copper (Cu)	Not readily available		≤ 0.1 mg/kg (refined); ≤ 0.4 mg/kg (virgin)	
Acid value	3.2± 0.31 mg KOH/g	Garti et al. (2019). *Physicochemical Properties and Fatty Acid Composition of Shea Butter…* UDS Int. J. Dev. 6(3): 35–40.	≤ 0.6 mg KOH/g (refined); ≤ 4.0 mg KOH/g (cold-pressed/virgin)	Codex Alimentarius Commission. Appendix 1 to the Codex Standard for Named Vegetable Oils (CXS 210-1999): Specific Provisions for Shea Butter. FAO, 2022.
Free fatty acid	0.28% to 7.51%	Garti et al. (2019). *Physicochemical Properties and Fatty Acid Composition of Shea Butter…* UDS Int. J. Dev. 6(3): 35–40.	Unrefined: Grade 1 = 1 % Grade 2 = 1.1 – 3 %	

[23] Okullo, J.B.L., Omujal, F., Agea, J.G., Vuzi, P.C., Namutebi, A., Okello, J.B.A., & Nyanzi, S.A. (2010). Physico-Chemical Characteristics of Shea Butter (Vitellaria paradoxa C.F. Gaertn.) Oil from the Shea District of Uganda. African Journal of Food, Agriculture, Nutrition and Development, 10(1), 2070–2084. https://doi.org/10.4314/ajfand.v10i1.51484

[24] Garti, H., Agbemafle, R., & Mahunu, G.K. (2019). Physicochemical Properties and Fatty Acid Composition of Shea Butter from Tamale, Northern Ghana. UDS International Journal of Development, 6(3), 35–40. https://doi.org/10.47740/389.UDSIJD6i

[25] FAO Codex CXS 325R-2017 (https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/)

[26] Shea Butter: Properties and applications - Kumar Metal Industries

Peroxide value	9.8± 0.42 meq O_2/kg	Garti et al. (2019). *Physicochemical Properties and Fatty Acid Composition of Shea Butter* UDS Int. J. Dev. 6(3): 35–40.	Unrefined: Grade 1 = 10 (milliequivalents active oxygen/kg oil) Grade 2 = 11 – 15 (milliequivalents active oxygen/kg oil)	fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B325R-2017%252FCXS_325Re.pdf

Chemical and physical characteristics of crude Shea Butter

The table below presents the typical chemical and physical characteristics of crude shea butter, including data such as density, refractive index, saponification value, and others, along with clickable hyperlinks to their respective sources.

Parameter	**Typical Value (for crude shea butter)**	**Source (clickable link)**
Relative density (x ºC/water at 20 ºC)	0.91–0.92 at 20 °C	CXS 325R-2017
Apparent density (g/ml)	0.89–0.94	
Refractive index (ND 40 ºC)	1.466–1.470	
Saponification value (mg KOH/g oil)	160 – 195	
Iodine value	30 – 75	
Unsaponifiable matter (g/kg and % m/m)	1 – 19	
Stable carbon isotope ratio	-28‰ to -26 ‰	Not known yet

Sterol composition of crude Shea Butter (Desmethylsterols)

Data on the desmethylsterol profile of crude shea butter are exceedingly scarce and generally based on indirect estimates. One report indicates that crude shea oil contains approximately 4 % by weight, total sterols, whereas this value may increase to as much as 12 % by weight in the olein fraction derived from shea butter.

Methods of analysis

The methods of analysis will be included in CXS 234-1999 once they have been endorsed by CCMAS.

Unrefined shea butter shall be tested in accordance with the appropriate testing procedures (see 8.2 in CXS 325R-2017):

Test parameter	Method
Determination of moisture content	- AOAC 920.116 - IUPAC2.60 - ISO 662:1998
Determination of free fatty acid content: acid value and acidity	- ISO 660:1996 - IUPAC 2.201
Determination of relative density	- IUPAC 2.101
Determination of saponification value	- ISO 3657:1988 (revised 1992) - IUPAC 2.202
Determination of iodine value	- AOAC 925.56 - ISO 3961:1999
Determination of peroxide value	- AOCS cd. 8b - 90 - IUPAC 2501 - ISO 3960:2005
Determination of unsaponifiable matter	- ISO 3596-1:1996 - IUPAC 2. 401
Determination of insoluble impurities content	- ISO 663:2000 - IUPAC 2604
Determination of melting point	- ISO 6321:2002
Determination of lead content (Pb)	- ISO 12193:1994 - AOAC 972.25 - AOAC 994.02 - IUPAC 2632
Determination of arsenic content (As)	- AOAC 952.13 - IUPAC 3136
Determination of iron content (Fe)	- ISO 8294:1994 - AOAC 990.05 - IUPAC 2631