



# Understanding SPS Requirements for Ghana's Exports to the EU

Focus on Cocoa, Cashew and Tuna  
products

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## Published by:



**CUTS INTERNATIONAL, GENEVA**

Rue de Vermont 37-39  
1202 Geneva, Switzerland  
[www.cuts-geneva.org](http://www.cuts-geneva.org)

Also at: Jaipur, New Delhi, Chittorgarh, Kolkata, Hanoi,  
Nairobi, Lusaka, Accra, Washington DC

This paper was undertaken by CUTS Africa Resource Centre (ARC), Accra. It is published under CUTS International Geneva's project "Understanding SPS Requirements for Export", undertaken with funding support from the Alliance for Product Quality in Africa.

**Citation:** AYEDUVOR, OBENG AND ADOMANKO (2020). *Understanding SPS Requirements for Ghana's Exports to the EU: Focus on Cocoa, Cashew and Tuna products*. Geneva: CUTS International, Geneva.

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# List of Acronyms

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BRC	British Retail Consortium
BRCGS	British Retail Consortium Global Standards
CMC	Cocoa Marketing Company
CMC	Cocoa Marketing Company
CRIG	Cocoa Research Institute of Ghana
EU	European Union
FDA	Food and Drug Authority
FSSC	Food Safety System Certification
GFSI	Global Food Safety Initiative
GSA	Ghana standard Authority
GWP	Good Warehousing Practices
HACCP	Hazard Analysis and Critical Control Points
IFS	International Food Standard
LBCs	Licensed Buying Companies
PAH	Polycyclic Aromatic Hydrocarbons
PPP's	Plant Protection Products
PPRSD	Plant Protection and Regulatory Service Division
QCC	Quality Control Company
QMS	Quality Management Systems
RCN	Raw Cashew Nuts
SPS	Sanitary and Phytosanitary
UNECE	United Nations Economic Commission for Europe
WTO	World Trade Organization

# Introduction

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Ghana is a signatory to the World Trade Organization (WTO) agreement on Sanitary and Phytosanitary (SPS) measures. This agreement guides strategies for ensuring food safety and plant health in Ghana. The WTO Agreement on the application of Sanitary and Phytosanitary measures (SPS Agreement) gives members the right to take measures necessary for the protection of human, animal or plant life or health. It obliges members to ensure that any of such measures are applied only to the extent necessary to protect human, animal or plant life or health, based on scientific principles and do not arbitrarily or unjustifiably discriminate between members where identical or similar conditions prevail (Maden, et al., 2014).

While food safety is important for both national and international trade, phytosanitary compliance can especially be a big obstacle for international trade. In most developing countries, trade is a major driver of development. In case of Ghana where the agricultural sector remains the mainstay of the economy, increase in agricultural trade and exports contribute to the development of the country (Day et al., 2012). However, there are risks associated with trade of food and agricultural products. The hazard of food entering the national and international market lies in the fact that consumers potentially can be exposed to risks arising from additives, contaminants, toxins or disease-causing organisms in food. Hence, adequate knowledge in food quality, sanitary and phytosanitary (SPS) requirements are necessary technical measures that can facilitate trade among countries.

Despite the importance of SPS measures, most small and medium scale enterprises (SME) from developing countries including Ghana are unable to meet these requirements due to several factors including overlapping institutions and lack of training on conformity to SPS measures. It is in this context that this manual provides an understanding of sanitary and phytosanitary measures for selected food products with potential for enhancing exports from Ghana into the European market. It covers five (5) food products: (i) a guide on cocoa beans (whole or broken, raw or roasted) (ii) a guide on cocoa butter, fat and oil (iii) a guide on cocoa paste, wholly or partly deflated (iv) a guide on fresh or dried cashews and (v) a guide on prepared or preserved tuna/skipjack/bonito

## Methodology

The approach for this study was to conduct an assessment of the sanitary and phytosanitary measures of the selected food products for export (cocoa beans, butter, paste, cashew nuts and tuna) into the European market and to provide a directory of what potential SME exporters of the covered products need to do to ensure that their exports meet the EU SPS standards and are therefore able to access the EU market. This is premised on the fact that the EU provides a largely open and lucrative market that can be leveraged by SMEs in these sectors if they are able to conform to the SPS requirements.

The study engaged several stakeholders responsible for production, processing, inspection, certification and export of these selected products. These include institutional representatives from the Ghana standard Authority (GSA), Food and Drug Authority (FDA), COCOABOD, Plant Protection and Regulatory Service Division (PPRSD), Cocoa Research Institute of Ghana (CRIG), cocoa processors, cocoa purchasing company, fish processors, cashew Industry association in Ghana, cashew farmers association, continental export, exotic sea food and food caners. Additionally, data was collected from cashew farmers, cocoa farmers and other relevant institutions. The study provides a guide for good practices in ensuring phytosanitary measures in the selected food products.

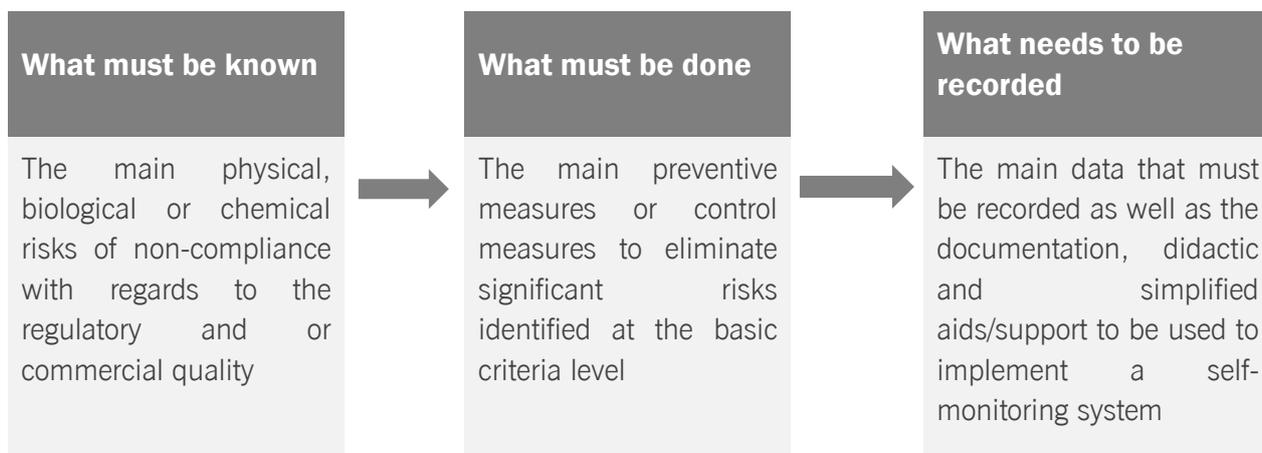
# General Guidelines and Directions for use of Manual

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The manual covers cocoa beans, cocoa butter, cocoa paste, cashew nuts and tuna providing information on standards and requirements for production, harvesting, transport and exportation. This is in the form of:

- General information and requirements related to the process and requirements of good practices
- Risk evaluation and a detailed analysis of the dangers, taking into consideration actual practices and a proposition of control measures (points of attention)
- Registration models for traceability and self-monitoring

Based on the risks associated in field practices, an analysis was done at each stage of the process. These categories of risks are analysed in the guide, according to the scheme below:



The analysis describes the main dangers that may lead to the risk of non-compliance with the applicable regulatory or commercial requirements and which must be the subject of appropriate controls.

The dangers could be of a biological, chemical or physical nature or result from the non-control of a process that can have an impact on the commercial quality criteria (taste and color)

To do this, at each stage, the risks are analyzed according to the steps below:

- Risks concerned with the general quality of products targeted in this study: for example, bruises on produce, presence of pests and progressive diseases, inappropriate/early maturity of produce, lack of traceability etc.
- Risks to health of consumers: for example, pesticides, aflatoxin and other possible contaminations
- Risks to the producers and employees (harvesters, station staff): For example, injuries during pruning or cutting down trees during harvesting etc.



## **What to do**

This stage proposes prevention or control measures that can be implemented to avoid risks at the basic criteria level. These are rated according to regulatory impact on the product. The rating system has 3 levels of requirements: (i) MAJOR requirements; (ii) MINOR Requirements; and (iii) Recommendations.

### Major Requirements

These relate to preventive or control measures, of which non-implementation may lead (high probability) to non-compliance, the impact of which may be critical, with regards to regulatory requirements in terms of sanitary, phytosanitary or commercial plans (e.g. exceeding of MRLs of a plant protection product used, etc.). They also relate to preventive or control measures whose non-implementation leads to non-compliance, the impact of which can be serious on the commercial quality of the product or the health of the consumer (example: rotting of mangoes upon arrival in destination market, pesticide residue content exceeded on peanut oil, etc.).

Lack of traceability from production to export is also a Major requirement.

### Minor requirements

These relate to preventive or control measures whose non-implementation may result in non-compliance and whose impact may be less severe on the sanitary or commercial quality of the product.

### Recommendations

These relate to control measures whose non-implementation does not have a significant detrimental impact on the sanitary, phytosanitary, or commercial quality of the product.

## SECTION 1

# Guide of Good Practices for Cocoa Beans (whole or broken, raw or roasted) - HS Code 180100

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The standard against which all cocoa is measured throughout the world is that of Ghana's cocoa due to its theobromine and flavonoids high content. This makes it the best cocoa for high-quality chocolates according to COCOBOD in 2017 (COCOBOD, 2017). The premium that Ghanaian cocoa gets because of its quality is estimated to be between 4 percent and 6 percent (Gilbert & Tollens, 2003). The International Cocoa Standards (ICS) obliges cocoa of merchantable quality to be fermented, meticulously dried, free from smoky beans, abnormal or foreign odour and any indication of adulteration. Also, it must be reasonably free from living insects, broken beans and fragments, and the beans must be reasonably uniform in size.

### Production and Harvesting

Production of quality cocoa starts with selection of the site for the farm, land preparation, planting and maintenance (weeding, pest control and fertilizer application). Establishing farms near mining activities (galamsey) may compromise the quality of cocoa beans due to contamination of soil and water with heavy metals such as Cadmium (Cd), Nickel (Ni) and Arsenic (As). Weed control stage is very important in order to control possible contamination with chemicals. Producers are advised to avoid high glyphosate phytotoxicity by avoiding spray drift on cocoa and food crops. It is recommended to spray early in the morning or late in the evening. During harvesting, pod breaking and fermentation, the cocoa beans may be exposed to pathogenic bacteria and fungi from the air, insects, birds, other animals and/or humans. If the pods and beans are undamaged and whole, contamination by bacterial and fungal can still remain on the surface/shell of the cocoa beans.

### Packing and warehousing

Warehousing starts from the shed of the Licensed Buying Companies (LBC's) until the beans are evacuated to the take-over centres of Terna, Takoradi and Kumasi. Upon reaching the take-over centres, the beans are received by warehouse managers who cross-check whether the number of bags matches those on the waybill. The received beans are then stacked separately from other bags for easy traceability once they are ready for shipment. It should be noted that raw cocoa beans can absorb odours and other airborne particles they come into contact with. Besides, there are also reports from buyers that nearly 4% of cocoa beans from some exporting countries have insect infestation. Hence the storage of cocoa beans, whether at farm level or at the LBCs or take-over centres, is of major concern as the risk of contamination is high. Poor warehousing or storage

conditions can: (i) allow pest access and infestation especially moths; (ii) create moist/damp or dusty environments from a lack of proper ventilation leading to the growth and proliferation of opportunistic micro-organisms, especially fungi; (iii) expose the bags and beans to birds, rodents and animal faeces; (iv) expose the dried beans to contamination from non-food items.

### Grading, Sorting and Sealing

The dried beans from the clerk's shed are received at the district depot, and then arranged according to the society origin in lots of 30 bags with all the detailed information. Staff of the Quality Control Company (QCC) are invited by the LBCs to inspect, grade and seal the cocoa into Grade I, Grade II or substandard beans. Cocoa is graded on the basis of the count of defective beans in the cut test. Defective beans should not exceed the following limits (Standards Authority Act, 1973 (N. R. C. D 173; Weights and Measures Degree, COCOBOD, 1975, N.R.C.D. 236, Section 18 and 22). Grade I (mouldy beans, maximum 3% by count; slaty beans, maximum 3% by count; insect-damaged, germinated or flat beans, total maximum 3% by count). Grade II (mouldy beans, maximum 4% by count; slaty beans, maximum 8% by count; insect-damaged, germinated or flat beans, total maximum 6% by count) (Ghana Standard GS 1093:2014). All cocoa which fails to reach the standard of Grade II will be regarded as sub-standard cocoa and marked 'SS'. The QCC uses approved chemicals for disinfestation of cocoa and warehouses cocoa storage. Graded cocoa beans are then sealed for secondary evacuation from the district depot to ports where Cocoa Marketing Company (CMC) receives the beans for onward export. The major risks posed are non-compliance with Good Warehousing Practices (GWP) and label instructions, including improper or illegal use of Plant Protection Products (PPP's).

### Bagging and Storage<sup>1</sup>

Clean jute bags are used to package the cocoa beans. The bags are made of non-toxic materials, preferably food grade hydrocarbons-free jute bags. Cocoa beans are also normally stored in premises constructed and operated with the object of keeping the moisture content of the beans sufficiently low, consistent with local conditions. Storage are on gratings or deckings which allow at least 7 cm of air space above the floor. In order to prevent infestation of cocoa beans by insects, rodents and other pests, the following procedure should be strictly adhered to. Bagged cocoa shall be so stacked that:

- (a) each grade and shipper's mark is kept separate by clear passages of not less than 60 cm in width, similar to the passage which must be left between the bags and each wall of the building;
- (b) disinfestation by fumigation (e.g. with methyl bromide) and or the careful use of acceptable insecticide sprays (those based on pyrethrin) may be carried out where required; and

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<sup>1</sup> The procedure for storage of cocoa beans is derived from Cocoa Industry (Regulation) (Consolidation) Degree, 1968, NLCD 278, Regulations 1, 6, 7, 13(1) and 13(2)

- (c) contamination with odours of flavours or dust from other commodities, both foodstuffs and materials such as kerosene, cement or tar, is prevented. Periodically during storage and immediately before shipment, the moisture content of each lot should be checked (Cocoa code of practice).

## Transport

Cocoa beans are well prepared, free from infestation and off-flavors. The cocoa beans are loaded in food-grade jute bags prepared for bulk shipping. The Quality Control Company conducts another check-sampling for all consignments prior to shipment to ensure that only good quality cocoa is exported. A purity certificate is again issued for every consignment passed for shipment. During shipment, only cocoa beans should be stored in one particular area of the cargo vessel. High fire-risk materials or poisonous chemicals, should never be stored with cocoa beans. Containers for cocoa shipping should be clean and free from residue of previous cargo. Containers should not have been used to carry chemicals or other materials giving off strong odours.

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## 1.1 Production and Harvesting



### What to know

- Chemical contamination of heavy metals such as Cadmium (Cd), Nickel (Ni) and Arsenic (As) because the farms are located in areas where illegal mining activities (galamsey) may lead to a very high contamination of soil and water (good agricultural practice (GAP); Environmental Protection Agency Act, 1994, Act 490).
- Chemical contamination due to over application of pesticide if the operator is poorly trained, as a result of wrong interpretation of the dosage given on the label of the pesticide container (Environmental Protection Agency Act, 1994 (Act 490); Regulation (EC) No.396/2005).
- Chemical contamination from soil, water, and the use of contaminated fertilizer (cadmium) and plant protection products for the control of pests and diseases (Environmental Protection Agency Act, 1994, Act 490); Regulation (EC) No.396/2005).
- There is risk of the use of unapproved agrochemicals on cocoa as the approved ones are often unavailable and relatively expensive compared to the unapproved ones. The use of non-authorized Plant Protection Product (PPP) treatment in your farm can lead to rejection of a whole consignment of produce from Ghana by the EU (Environmental Protection Agency Act, 1994 (Act 490); Regulation (EC) No.396/2005).

- High risk to consumers safety about levels of pesticide residues, mycotoxins, polycyclic aromatic hydrocarbons (PAHs) and heavy metal contamination in cocoa (Standards Authority Act, 1973 (N. R. C. D 173); Regulation (EU) No.1099/2010)
- Poor cultural practices may lead to a high incidence of pests/diseases, which may prompt excessive use of PPP (good agricultural practice (GAP)).
- The use of the right equipment for harvesting and pod breaking is crucial in the prevention of damage to pods/beans which may predispose beans to attack by mycotoxins (ochratoxin A) (good agricultural practice (GAP)).
- Personal and equipment hygiene for employees are important to prevent contamination of cocoa pods and beans at the time of harvest (Public Health Act, 2012)
- Risk of contamination with crop protection products, fertilizers and other toxic products stored with containers such as baskets, sacks, plastic and metal bowls and harvesting equipment. (good agricultural practice (GAP)).
- Germination and infection/infestation problems arise when pods are left on the tree for longer periods. Open the pods with a wooden baton or a club instead of a machete which may cut or damage the shell of the seed allowing mould infection and insect infestation (good agricultural practice (GAP)).
- Pods bruised or injured, when a machete is used to pick up or pluck the pod during the harvest, predisposes them to mycotoxin attack. Evidence to date suggests that ochratoxin producing organisms enter the cocoa supply chain through damaged pods (good agricultural practice (GAP)).
- Possible contamination because of the interval between harvesting ripe pods and pod breaking influences fermentation. Long delays in pod breaking (>3 days after harvest) leads to germination and affects the subsequent processes of fermentation, quality and shelf-life.
- Quality control at the pod breaking stage is necessary to eliminate germinating, immature and diseased beans. Proper hygiene of personnel is crucial to prevent contamination of products at the harvest time (Cocoa Industry Regulations, 1968 L.1.598).
- Cocoa bean contamination may occur if contaminated harvesting containers are used to transport or store dried beans (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1(4)).
- Employees must have access to clean sanitary facilities (Public Health Act, 2012)



## Main Risks

- Risk of biological contamination with mould arising from pods kept over a long period of time.
- Risk of biological contamination from improper sorting of rejected beans.
- Risk of physical contaminants from broken pieces and rust particles from poorly maintained machetes.
- Risk of biological contamination from workers handling the pod breaking and collection.
- Risk of biological contamination from cross-contamination from diseased pods to disease-free pod and beans.
- Risk of biological contamination from insect infested beans, black or diseased beans
- Risk of chemical contamination, not observing PHI, heavy metals and mycotoxins from mould infections
- Risk of physical contamination from metals, jewellery, stones, dust/soil, foreign matter.
- Risk of contaminating the beans during fermentation if pesticides are sprayed on heaps of fermenting cocoa to control bees.
- Risk of chemical contamination if contaminated bags (fertilizer bags and bags treated with mineral oil against fungus) are used to transport wet fermented or dry beans.
- Dirty fermenting and drying areas and their surroundings presenting food safety risks
- Risk of contamination of beans being dried directly on bitumen roads or smoke and fumes from dryers (polycyclic aromatic hydrocarbons).



## What to do

Requirement Level

- Risk assessment of new or existing site where activities (‘galamsey’-mining sites are illegally using heavy metals to pollute the environment) pose food safety problems. The key things to consider are: look out for local regulations or policies on farming; key informant history, previous crop, landfill or mining sites; soil; water adjacent farming activities, contamination from water. Major

- Carry out soil, surface and ground water analysis of site if historical activities such as mining or polluted streams run through the farm or pose food safety problems (Public Health Act, 2012; Environmental Protection Agency Act, 1994 (Act 490)). Minor

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- Train producers to implement GAP, in particular Integrated Pest Management (IPM)- pruning farm hygiene, weeding, sanitary harvest by removal of diseased pods, etc., to mitigate the risks of over-reliance on pesticides (Good agricultural practice (GAP)). Major

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- The list of all approved PPP used in cocoa production and demonstrate knowledge in their use (Good agricultural practice must be kept (GAP)). Major

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- Ensure the growers or the contracted staff [for cocoa mass spraying] who apply pesticide are trained and aware of the preparation of spray solution. Major

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- Standardize all spray equipment and scales used in production. Major

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- Carryout at least one pesticide analysis at society level (per truck load of up to 600 bags) from a recognized laboratory. Major

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- Make record sheets detailing all PPP applied to a particular plot available for inspection. The list must have a history of treatment from the first application to the last together with observance of pre-harvest intervals. Records must be available at farmer and society level. Major

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- Carryout hygiene risk assessment of personnel, equipment and transport. Major

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- Provide regular training in hygiene for all personnel or employees who come into contact with the beans to be clean during pod breaking, fermentation and drying. Records of training must be available. Major

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- Sort out black, damaged and wounded pods, all germinated and diseased beans, and small (immature) beans from the lot and dispose of them in a sanitary/hygienic manner (Good agricultural practice (GAP)). Major

- Make sure the right tool is provided for pod breaking and that pods are not injured with a machete or any other sharp object or equipment during harvesting to reduce ochratoxin A in the cocoa supply chain (Good agricultural practice (GAP)). **Major**

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- Do not store injured or bruised pods of any kind for any longer than one day. **Major**

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- Record details of source of pods, date of harvesting, pod breaking and fermentation. **Minor**

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- Keep all equipment (basket, sacks, drying mats, etc) coming into contact with wet or dry beans clean and free from dirt. **Minor**

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- Beans are to be fermented for at least 5 days and turned two times. **Recommended**

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- No insecticides are to be used to control bees at the site used for fermenting beans (Good agricultural practice (GAP)). **Minor**

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- The fermenting/drying environment, platforms, mats, plastics in the fermenting and drying process must be kept clean to prevent produce contamination. **Minor**

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- Measures need to be taken to avoid contact of the beans with the ground, soil, dirt and animals during the fermentation and drying process. **Major**

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- Beans must always be dried on a raised platform and must not come into contact with the soil. **Major**

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- Cross contamination of fermented beans with lubricants, smoke, fuel, and any other chemical or off-flavour materials must be prevented. **Major**

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- Fire and smoke should not be used for drying the beans. **Major**

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- Produce should always be covered at night and protected from rain, moisture and dew during the drying process. **Major**

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- Beans are to be turned regularly at least 5 times a day with **Recommended** continual sorting to remove foreign materials.
- 
- Beans are dried daily in the sun sufficiently to have the correct **Major** moisture content (7.5%).
- 



## What to record

- All training records must be signed indicating the nature of training, the topics covered and the resource persons used.
- All records of fertilizer and other agrochemicals used, including the location, dates, the reason for application, type and quantity, method (foliar or soil), and the person who applied them.
- Competency of the person handling PPP's and any training.
- All PPP type used, date, quantity and rate of application, requisition and approval records; storage, formulation and disposal methods, and location of containers must be recorded.
- Calibration sheets for knapsacks and motorized mist blowers used for foliar fertilizer, herbicides, fungicides and insecticides.
- Plant population, plot identify, and variety of crop, dates.
- Residue test at society level.
- Participant assessment sheet/forms of the training received.
- Record results of pre- and post-training assessment test of participants
- Time of spraying and time of harvest, pod breaking, time of fermentation and drying
- Keep personal records of employee on their files
- Keep personal records of employee hygiene and food safety training
- Regular checks, maintenance programme and service files

## 1.2 Transportation of Cocoa Beans

Contamination of cocoa beans occurs when farmers transport it in ordinary vehicles (for instance taxis) together with other food and non-food items or other merchandized items transported at the same time or from previous transport. All vehicles used in transportation are inspected before haulage to ensure they are free from contaminants (quarry products, cements, poultry feed, chemicals etc.).



### What to know

- Pathogens or chemicals from previous loads contaminate the cocoa bags during transportation by; being circulated in the air; condensation dripping into the bags; debris containing pathogens; manure accumulation from previous livestock and poultry transportation
- Excess debris in the vehicles creates a higher risk that foreign material could be embedded in the bags
- Vehicles in bad state create high risk for contamination from material such as broken metal parts, glass from windows.
- Contamination can also occur as a result of previous transportation of hygienically hazardous substances and other merchandise such as cements, fertilizer, agrochemicals
- There must be a written contract covering the state of hygiene of the vehicle



### What to do

Requirement Level

- Have a written contract with the transporter with provisions for relevant procedures on food hygiene and safety **Major**
- Check that vehicle used for transport of bagged beans are not used for transporting other commodities at the same time **Major**
- Ensure that the vehicle is clean, dry, odour free and well maintained to prevent contamination from soil, cement, dirt, organic fertilizer etc. **Major**

- Check for labels on all bags with traceability records or drops marks **Major**

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- Provide evidence that the vehicles used in the transport of beans has been cleaned **Minor**

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- Protect bagged beans being loaded or transported from getting wet **Major**

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- Guarantee that the vehicles used for the transport of beans is free from all pests **Minor**

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- Train or instruct drivers and loaders on the need to observe personal hygiene and cleanliness. **Minor**

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## What to record

- Cleaning schedule and records
- Contract indicating the obligations of the transport and that of CMC
- Proof of cleaning of vehicles (washing bay receipts, cleaning record etc.)
- Training records-safety, food safety, hygiene
- Details of hauler (Name, time of dispatch, time of arrivals , time of loading, date of previous vehicles cleaning, place of vehicle cleaning, vehicle registration)

## 1.3 Cocoa warehouse storage



### What to know

- It is important to trace all bags brought to the warehouse
- After purchase from the farmer, cocoa should not be stored in bags infested with insects, but bagged in clean, dry bags of strong and unimpaired texture and inspected, graded and sealed.
- New cocoa bags must be kept away from any building in which cocoa is stored.
- The warehouse must be built with sound and robust material with sufficient artificial or natural illumination and be rain-proof to prevent wetting the beans
- The floor of the shed/warehouse should be kept dry and properly constructed of concrete, cement, stone, brick or wood.
- Droppings from birds, bats and pets could contaminate packaging materials if the materials are not properly stored in the warehouse.
- Only chemical agents approved by COCOBOD shall be used in disinfesting the warehouse by QCC.
- Where artificial lights are provided in a warehouse, such fixtures are to be protected to prevent breakages and contamination of glass particles.



### What to do

Requirement Level

- Make sure that the warehouse design and construct are sound, robust, well ventilated and complies with the specification of QCC (Cocoa Industry Regulations, 1968 L.1.598). **Major**
- Provide concrete floors and walls that are smooth without cracks, fissures and which can be cleaned easily (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1 (5)). **Major**

● Clean and disinfect floors, walls, gratings and other storage equipment before and after the cocoa season (Cocoa Industry (Regulation) (Consolidation) Degree, 1968, NLCD 278).	Major
● Cocoa is stored to allow adequate ventilation and access to all sides of each stack between the stacks and walls (Cocoa Industry Regulation Degree, 1968, NLCD 278, Regulation 1 (5)).	Major
● Check that there is no storage of items other than cocoa beans (food, oil, fuel, motorbikes, cooking facilities).	Major
● Register all incoming parcels of cocoa with the following information; produce, quantity, society/community of origin, date and signature of person who delivered it (Cocoa Industry Regulation Degree, 1968, NLCD 278).	Major
● Provide changing facilities and PPE for loaders and sorters	Recommended
● Identify, signpost and show the plan of all rodent baits or traps in the warehouse	Recommended
● Set up a monitoring system for pests, rodents, birds etc	Minor
● Maintain evidence of training licensed agents	Minor
● Keep evidence of certification of storage premises by QCC	Minor



## What to record

- Cleaning and maintenance of the warehouse (dates needed, cleaning procedures and aids used)
- Glass handling procedures in the warehouse
- Procedures and records of monitoring pest activity and control
- Records of fumigants and other plant protection products used in the warehouse.
- Number of baits, types pest numbers and types eliminated
- Training records

## 1.4 Packaging of Cocoa Beans (Grading, Sealing)

### ? What to know<sup>2</sup>

- It is important to trace all bags brought to the warehouse.
- New cocoa bags must be kept away from any building in which cocoa is stored.
- The warehouse must be built with sound and robust material with sufficient artificial or natural illumination and be rain-proof to prevent wetting the beans
- The floor of the shed/warehouse should be kept dry and properly constructed of concrete, cement, stone, brick or wood.
- Droppings from birds, bats and pets could contaminate packaging materials if the materials are not properly stored in the warehouse.
- Only chemicals agents approved by COCOBOD shall be used in disinfesting the warehouse by QCC.
- Where artificial lights are provided in a warehouse, such fixtures are to be protected to prevent breakages and contamination by glaze.
- All empty storage sheds and gratings are to be disinfested prior to the opening of each cocoa season, with an approved insecticide.
- You need to be able to trace all produce received. Traceability will enable you to recall or withdraw cocoa bags that have food safety or quality problems. It will also help you identify the producer(s) responsible.
- Risk of contamination of beans in storage with common hydrocarbon sources such as kerosene, diesel and petrol. Risk of mouldy beans as a result of bagging wet beans or re-wetting of beans.
- Contamination of cocoa with storage pests (insects, mites, rodents) etc.
- Risk of mixing dried beans with faecal matter from birds, dogs, cats and rodents. Contamination from rodenticides, fumigants or other pesticides used in controlling pests at the depot.
- Risk of physical contamination with glass, metal, plastics, stones (from improperly maintained warehouses), wood (splinters from pallets).

<sup>2</sup> All procedures are derived from the following regulations and guidelines (i) Cocoa Industry Regulation Degree, 1968, NLCD 278 Regulations 1, 6, 7, 13(1) and 13(2) (ii) Environmental Protection Agency Act, 1994 (Act 490) (iii) Public Health Act, 2012

- Storage sheds with stocks of produce have to be disinfested by QCC staff to eliminate exposure to insects until all stocks are evacuated.
- Sealed produce shall be evacuated according to seal number, i.e. FIRST SEALED, FIRST OUT
- The timing of the fumigation of the depot and the correct preparation of PPP are key to its effectiveness



### What to do<sup>3</sup>

#### Requirement Level

- Make sure that the warehouse design and construction is sound, robust, well ventilated and complies with the specification of Quality Control Company (QCC) (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1(4). Major

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- Provide concrete floors and wall that are smooth without cracks, fissures and which can be cleaned easily (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1(4). Major

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- Clean and disinfect floors, walls, gratings and other storage equipment before and after the cocoa season. Major

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- Cocoa is stored to allow adequate ventilation and access to all sides of each stack between the stacks and walls. Major

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- Check to ensure no evidence of storage of items other than cocoa beans (food, oil, fuel, motorbikes, cooking facilities) Major

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- Register all incoming parcels of cocoa with the following information: produce, quantity, society/community of origin, date and signature of person who delivered it. Major

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- Provide changing facilities and PPE for loaders and sorters Recommended

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- Identify, signpost and show the plan of all rodent baits or traps in the warehouse Recommended

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<sup>3</sup> These procedures are derived from General Food Law (Regulation EC 178/2002), the general rules on Food Hygiene (Regulation EC 852/2004) and Cocoa Industry Regulations, 1968 L.1.598

● Set up a monitoring system for pests, rodents, birds etc.	Minor
● Maintain evidence of training licensed agents	Minor
● Keep evidence of certification of storage premises by QCC	Minor
● Produce must be traceable back to, and trackable from, the registration farm (one step up, one step down) with drops marks on bags.	Major
● Check for evidence of cleaning and good hygiene in the store/shed/warehouse and the surrounding	Minor
● Provide an up-to date list of pesticides allowed for the treating shed, gratings and store produce.	Minor
● Maintain evidence of QCC inspection, grading and sealing of cocoa	Minor
● Ensure the technically responsible person for application is able to demonstrate competence in the field of pesticides.	Major
● All PPPs used in the storage area to control pests must be recorded	Major
● Inspect all cocoa beans to ensure that they do not contain contaminants.	Major
● Organize staff training sessions that cover warehouse management and hygiene.	Minor



## What to record

- Signed training records indicating the nature of training, the topics covered and the resource persons used
- Records of all fertilizer and other plant protection product applications, including the location, dates, the reason for application, type and quantity, method (foliar, or soil), and the person who applied them

- Records of PPP type used, date, quantity and rate of application, requisition and approval records; storage, formulation and disposal methods, and location of containers.
- Calibration sheets for knapsacks and motorized mist blowers used for foliar fertilizer, herbicides, fungicides and insecticides.
- Plant population, plot identify, and variety of crop, dates.
- List of approved PPPs
- Participant assessment sheet/forms of the training received
- Time of spraying and time of harvest (PHI), pod breaking and time of fermentation
- Time of drying
- Employee files (personal records, if any)
- Employee hygiene training (personal records, if any)
- Regular checks, maintenance programme and service files
- Record cleaning and disinfection schedule for floors, walls, containers
- Hygiene procedures
- Training records on hygiene and food safety
- Records of dates, names and active ingredients of methods of pest control, personnel, volume of produce/shed used in spraying, fogging or fumigation.
- Records of movement of cocoa beans in and out of the depot
- Record of inspection, grading and sealing issued by QCC
- Residence time for cocoa beans for evacuation
- Goods receipts invoices and transfer of dispatch invoices and waybills
- Equipment calibration of all equipment used by QCC staff and maintenance records

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## 1.5 Export of Cocoa beans, whole or broken, raw or roasted

Prior to exporting cocoa beans to the EU markets, it must meet the certain requirements, which are classified into mandatory (public standards), and voluntary (de facto mandatory) requirements (private standards)<sup>4</sup>.

### Mandatory requirements (public standards)

- **Food safety:** Cocoa beans must comply with the General Food Law(Regulation EC 178/2002) and the general rules on Food Hygiene(Regulation EC 852/2004)
- **Food contaminants:** Must comply with the regulation on contaminants in foodstuffs (Regulation EC 1881/2006). Particularly the following contaminants compliance must be adhered to:
- **Heavy metals, in particular cadmium (Regulation EU 488/2014):** The European Union has strengthened its regulation on cadmium in cocoa and derived products. That is maximum permitted levels of heavy metals in particular cadmium in cocoa and derived product
- **Pesticide (Regulation EC 396/2005):** The European Union has set maximum residue levels (MRLs) regarding the amount of pesticides allowed in food products, including cocoa.
- **Mycotoxins:** Mycotoxins such as aflatoxins and ochratoxin A can occur in cocoa as a result of fungal infection of crops. Hence, exporters should focus on good agricultural, drying, processing and storage practices, for instance through the adoption of Good Agricultural Practices and/or Good Manufacturing Practices. These steps have a significant influence on the development of mycotoxins. Check the attached link for the available guidelines on how to reduce mycotoxin contamination at various levels of cocoa production chain<sup>5</sup>.
- **Polycyclic-aromatic hydrocarbons (PAHs):** Polycyclic aromatic hydrocarbons (PAHs) may also contaminate cocoa during the post-harvest or primary processing stages. Hence, cocoa producers should avoid drying cocoa beans with fire or beside roads, the use of inefficient artificial dryers and storage in the presence of smoke. Check Codex Alimentarius'(CXC 68-

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<sup>4</sup><http://bilateral-chamber-of-commerce-el-salvador-holland.nl/wp-content/uploads/2019/03/Requirements-EU-Cacao-in-English.pdf>

<sup>5</sup> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3153271/>)

2009) for the Code of Practice for the Reduction of Contamination of Food with Polycyclic Aromatic Hydrocarbons (PAH) from Smoking and Direct Drying Processes.

- **Microbiological/Salmonella (Regulation EC 2073/2005):** In spite of the fact that cocoa is deemed as a low-risk commodity, it may sometimes be subjected to microbiological contamination due to incorrect harvesting and drying techniques. This therefore needs to be taken note of by exporters.
- **Foreign matter:** Although there is no legislation on this so far in the EU, cocoa beans can be contaminated by foreign matter like plastic and insects serving as a threat when food safety procedures are not carefully adhered to. For example, mineral oil residues (MOSH and MOAH) have been recently found in chocolate in Germany. Such residues can be derived from materials like recycled paper and treated gunny bags
- **Consumer labelling (Directive 2000/36/EC):** Regarding cocoa beans, labelling is not liable to specific legislation, but at least should include the product name, grade, lot or batch code, country of origin and net weight in kg.
- **Storage, packaging and transportation requirements:** Cocoa beans should meet, storage, packaging, transportation requirements including the temperature, humidity/moisture and ventilation conditions; stowage space requirements etc<sup>6</sup>.
- **Quality criteria (Directive 2000/36/EC):** Cocoa beans should come from good trees (genetics), be well cared for and grown in a suitable environment; be correctly harvested; and follow optimum fermentation and drying protocols specific to the type of beans. Also, good practices should be observed to keep the trees healthy and free of pests and diseases and farmers should possess know-how for processing cocoa beans

## De facto mandatory (private standards)

- **Food safety certification:** Extra guarantees including implementation of product-specific quality standards and Quality Management Systems (QMS) concerning the production and handling processes. Particularly, producer organizations must meet good agricultural practices to ensure food safety, which are provided by GLOBALG.A.P.
- **Sustainability certification:** Some European companies have instituted minimum sustainability requirements for their suppliers that address major issues including child labour, healthy and safe working conditions, deforestation and pesticide use in line with cocoa production. UTZ and Rain Forest Alliance- now merged into a single organization and

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<sup>6</sup> [https://www.tis-gdv.de/tis\\_e/ware/genuss/kakao/kakao-htm](https://www.tis-gdv.de/tis_e/ware/genuss/kakao/kakao-htm)

certification entity called Rainforest Alliance- are the largest employed certification schemes for cocoa

- **Organic certification:** cocoa products that have been organically produced must possess an electronic certificate of inspection (eCOI)

 <b>What to do<sup>7</sup></b>	Requirement Level
<ul style="list-style-type: none"> <li>● Define critical control points (HACCP) by implementing food management principles</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Subject cocoa beans to official control</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Focus on applying good agricultural practices to reduce the presence of food contaminants</li> </ul>	Recommended
<ul style="list-style-type: none"> <li>● Desist from drying cocoa beans with fire or beside roads, the use of inefficient artificial dryers and storage in the presence of smoke</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Conduct a laboratory analysis of cadmium levels in cocoa beans</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Apply Integrated Pest Management (IPM), an agricultural pest control approach that uses complementary crop management strategies and practices to help minimize the use of pesticides (good agricultural practices)</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Focus on good agricultural, drying, processing and storage practices, for example by adopting Good Agricultural Practices and/or Good Manufacturing Practices.</li> </ul>	Recommended
<ul style="list-style-type: none"> <li>● Cocoa beans should be packaged in bags of jute or sisal usually of a (gross) weight of 60–65kg, rarely of up to 100kg. New or high-quality bags should be used due to the high value of the cargo (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1(4)).</li> </ul>	Major
<ul style="list-style-type: none"> <li>● The wooden flooring of the containers must be absolutely cleaned and dried. If it has been washed, it must have dried completely. Water content should be 12%, corresponding to a lumber</li> </ul>	Major

<sup>7</sup> These procedures re derived from: (i) Good agricultural practices (ii) Cocoa Industry Regulations, 1968 L.1.598 (iii) Weights and Measures Degree, 1975, N.R.C.D. 236, Section 18 and 22(iv) Regulation (EC) No 852/2004 (v) Regulation (EC) No 178/2002 (vi) Regulation (EC) No 882/2004 (vii) Regulations (EC) Nos 178/2002, 852/2004, 853/2004

equilibrium moisture content of 70%, so that the flooring does not constitute an additional source of water vapor to dampen the cocoa cargo and container atmosphere.

● Given the high value of a fully loaded cocoa container, a two-layer anti-condensation film or nonwoven should be used to provide protection against dripping sweat	Minor
● The cargo may be covered with paper which readily absorbs any moisture to provide protection from moisture damage	Minor
● Cocoa beans may also be transported on flatracks in ventilated holds. This approach is a cost-effective alternative to the costly ventilated containers, which are the ideal way to transport cocoa beans	Major
● Cocoa beans are transported in standard containers using big bags or liner bags	Major
● Provide an up-to date list of pesticides allowed for the treating shed, gratings and store produce.	Minor
● Hooks must not be used in cargo handling as they subject the cargo to point loads, so damaging the bags	Minor
● In damp weather (rain, snow), the cargo must be protected from moisture, since wetting and extremely high relative humidity may lead to mold growth.	Major
● Stowage space requirements: Cool, dry and good ventilation. The cargo should be stowed below deck away from sources of heat because there is a risk of self-heating and post fermentation.	Major
● Segregation: Fiber rope and thin fiber nets	Major
● When transporting cocoa beans in containers, care should be taken to ensure that the water content of the cocoa beans on packing is approx. 6–8%, which corresponds to an equilibrium moisture content of 75–85% (at 20°C) and a temperature/dew point difference of 5–3°C (Cocoa Industry Regulations, 1968 L.1.598, Regulation 1(4))	Minor
● Recommended ventilation: air exchange rate 10–20 changes/hour (airing)	Recommended

- Must comply with the maximum residue limits (MRLs) on the amounts allowed in food products: See the legislation regarding the control of pesticide residues (Regulation EC 395/2005) **Major**

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- Comply with the new maximum levels of cadmium in food products (Regulation EU 488/2014) **Major**

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- Certified cocoa by organic or fair-trade, should list the name/code of the inspection body and certification number. These have been spelt out in Products (Directive 2000/36/EC) **Major**



## What to record

- Record of details of society, drop mark, arrival date, off-loading and shipment date of cocoa beans
- Record of storage period and pre-shipment period
- Record of report of inspection
- Cargo history of ship and cleaning programme
- Details of fumigation of ships hold, date, PPP applied, approval status
- Certification of purity from QCC prior to loading ship
- Record of analytical results on the consignment shipped
- Storage condition in the ship's hold loaded with the dried beans
- Record of relevant documents such as bills of loading, EUR certificate, phytosanitary certificate and document of origin.
- Job certification report. This certificate is given after the warehouse has been sprayed/fogged or the consignment of cocoa had been fumigated

These certificates are issued by quality control company of Ghana COCOBOD based on compliance to all requirements by the cocoa marketing company to requirements to destination markets.

## OVERVIEW: SUMMARY OF CERTIFICATION PROCEDURE FOR COCOA BEANS, WHOLE OR BROKEN, RAW OR ROASTED

No.	Certification/Documents and Relevant Authorities/Institutions	Procedures/Other requirements (when issued)	Fees Payable
01	Certificate of Registration of Premises for cocoa Storage (Issued by Quality control company)	After the inspection and approval of the warehouse.	N/A
02	Phytosanitary Certificate (Issued by Plant Protection and Regulatory Service Directorate)	Sampling for inspection prior to certification	GHC10.00 per ton
03	Inspection Certificate for Graded & Sealed Cocoa (Issued by Quality Control Company)	After inspection, grading and sealing of a consignment presented for the very first time; Usually at the District Depot of the Licensed Buying Companies (LBCs) up-country.	GHC10.00 per ton
04	Evacuation Certificate for Graded & Sealed Cocoa (Issued by Quality control company)	When consignment of graded & sealed cocoa is being evacuated from up-country to the take-over centres by the LBC.	GHC15.00 per ton
05	Purity Certificate for Inspected Cocoa on Arrival (Issued by Quality Control Company)	After inspection and grading of a consignment of cocoa on arrival at the take-over centres before the Cocoa Marketing Company (CMC) takes over from the LBC.	GHC10.00 per ton
06	Job Certificate Report (Issued by Quality control company)	After the warehouse had been sprayed/fogged or the consignment of cocoa had been fumigated.	GHC10.00 per ton
07	Purity Certificate for Inspected Cocoa being Shipped (Issued by Quality Control Company)	After inspection and grading of a consignment of cocoa at the take-over centres before the CMC is advised to ship	GHC10.5 per ton
08	Fumigation Certificate (Issued by Quality Control Company)	After fumigated consignment of cocoa had been sieved to confirm it is free from insects. (Consignment of cocoa showing no sign of infestation).	GHC10.00 per ton

**SECTION 2**

# Guide on Good Practices for Cocoa Butter, fat and oil – HS Code 180400

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Cocoa butter is the fat obtained from cocoa beans through mechanical process. Cocoa butter processing starts with the extraction of the roasted cocoa beans. This process results in pieces of pure cocoa beans called **cocoa nibs**. Cocoa nibs are further grounded into a paste called **cocoa paste, mass or liquor**. **Cocoa butter** is derived from the cocoa paste with a hydraulic press. The butter is creamy, thick and pale yellow<sup>8</sup>. It is soft and malleable at 30-32°C and can melt at 37°C. In its warm or molten state, it can retain the latent heat and remain in such a condition down to as low as 17°C<sup>9</sup>.

The Ghana quality requirement for cocoa butter are shown in the table below, as enshrined in the Standards Authority Act, 1973 (N. R. C. D 173; Public Health Act, 2012)

TABLE 1: THE GHANA QUALITY REQUIREMENT FOR COCOA BUTTER

Characteristic	Limit
Free fatty acid content (expressed as oleic acid)	Not more than 1.75% m/m
Unsaponifiable matter	Not more than 0.7% m/m, except in the case of pressed cocoa butter which shall not be more than 0.35% m/m

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<sup>8</sup> <https://www.cbi.eu/market-information/cocoa-cocoa-products/semi-finished-cocoa-products>

<sup>9</sup> <http://www.gard.no/Content/24937985/CINS%20Cocoa%20Butter%20Guidelines%20January%202018%20Final.pdf>

## 2.1 Packaging and Labelling

Cocoa butter is appropriately packaged in sealed plastic bags placed into cardboard boxes (cartons). During shipping, especially in dry containers, the cartons' design must be good to support the entire stacked mass even when the cocoa butter is softened due to high temperatures). In case wet damage is sustained to cartons of cocoa butter and if the water enters into the blocks of cocoa butter within the inner poly packaging, discolouring of the product will occur. Wetting of cocoa butter cartons can also cause microbial contamination of the cocoa butter, making it unhealthy for human consumption. When cartons of cocoa butter are identified to be infested, there should be no fumigation since the chemical residue will be immersed by the butter making it contaminated and unhealthy for use in the human food chain. Hence, such cartons of cocoa butter should be discarded.

The butter is labelled either on the container or in accompanying documents. The packaged butter contained inscription such as the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor and/or importer shall appear on the container.



### Main Risks

- Risk of contamination from cocoa beans
- Risk of physical contamination from foreign materials including stones, wood, metal, glass, fibrous material, loose shells, dust and sand. Also, residues such as sand and dried pulp and shells should be removed to avoid further contamination.
- Risk of contamination by metal staples used as packaging materials. All ingredients for packaging should be checked on delivery and damaged goods rejected.
- Risk of metal contamination including nuts, bolts and fixings that can wear loose over time and fall into the process, enrober grid wires, which can be prone to breakage and sieves, can themselves become a source of metal contamination if they break.
- Risk of physical contamination including failure of rubber seals and gaskets, the damage and fraying of conveyor belts and the breakage of plastic moulds, mould carriers and other hard plastic items.
- Risk of microbial contamination of cocoa butter resulting from wetting of cocoa butter cartons

## 2.2 Storage and Transport

Dry containers carrying the cargo should be packed and transported to the load port terminal in cool temperatures (ideally in the night or at dawn) in order to reduce the exposure time to sun/heat before being loaded on board the ship. Also, cargo packers need to consider the time in transshipment hubs where containers are exposed to various weather conditions. Another risk factor that needs to be checked by cargo packers is the time in transshipment hubs where containers encounter various weather conditions. In this regard, the entire routing of the container should be considered in determining appropriate period within which the product should be transported in order to reduce the risks associated with transportation.



### Main Risks

- All raw materials should be protected during transport and storage to ensure that foreign materials such as dirt and wooden splinters from pallets.

## 2.3 Processing



### Main Risks

- Risk of contamination by soft and hard plastic, paper, foil wrapping material, wood, rubber, metal wire and shavings, loose screw, string and threads.
- Attention should be paid at the intake and tipping points of ingredients into the chocolate making process to prevent the addition of physical hazards.
- Workers must be careful during unpacking and tipping of non-bulk ingredients, such as those delivered in paper or plastic sacks, or boxes, to make sure that wrapping materials, string, knives and ingredient scoops do not mistakenly enter the process at this stage.
- Risk of physical contamination due to entry point of ingredients into the process, such as bulk ingredient delivery points, dry ingredient tipping stations and fat melters.
- Risk of metal contamination including nuts, bolts and fixings that can wear loose over time and fall into the process, enrober grid wires, which can be prone to breakage, and sieves, which although providing protection against foreign material, can themselves become a source of metal contamination if they break.
- Risk of physical contamination can also occur through the failure of rubber seals and gaskets, the damage and fraying of conveyor belts and the breakage of plastic moulds, mould carriers and other hard plastic items.
- Risk of chemicals contamination of cocoa butter which can also occur during processing and manufacture.
- Risk of chemical contamination as a result of chemicals used for cleaning confectionery equipment can easily happen.
- Chemicals required for maintenance and upkeep of the production environment, such as paints and sealants, must be of food safe composition when they may come into contact with food.
- Chemicals, used for treatment of water in heating and cooling systems contaminate the product through leakages.

## 2.4 Export of Cocoa Butter, Fat & Oil

For cocoa butter, fat and oil to enter the EU market, it must abide by the mandatory (public standards) requirements clearly stipulated in Directive 2000/36/EC and de facto mandatory (private standards) requirements<sup>10</sup>. The former are requirements associated with food ingredients specifically traceability and hygiene requirements. Details of such preconditions are summarized below:

### Mandatory requirements (public standards)

- **General Food Law, Regulation (EC) No 178/2002:** This law deals with the primary food safety principles such as traceability
- **Hygiene of foodstuffs, Regulation (EC) No 853/2004:** This demands that the producers and exporters comply with the hygienic standards subjected to the hazard analysis and critical control points (HACCP) obligatory for products above elementary production
- **Maximum residue levels (MRLs), Regulation (EC) No 396/2005:** This requirement that spells out the pesticide residue limits is not directly applied to semi-finished cocoa products rather the cocoa beans. However, its compliance can help avoid contamination of the former
- **Contaminants in food, Regulation EC 1831/2003:** This explains the major contamination risks linked to cocoa beans, and associated contamination of processed cocoa products
- **Microbiological contamination, Regulation (EC) No 2073/2005:** There is no particular requirements for cocoa products described under this legislation, however, contaminants including *E. coli*, Salmonella, Enterobacteriaceae, moulds and yeast may lead to market withdrawal
- **Extraction solvents, Directive 2009/32/EC:** This applies to specific cocoa products; such as limit on the use of Hexane (1 mg/kg) during the production of cocoa butter
- **Quality criteria:** Primarily, the quality of cocoa products particularly cocoa butter, fat and oil depends on the quality of cocoa beans hence all the requirements on cocoa must be met including the handling and processing of it<sup>11</sup>. Nonetheless, to access the EU market, cocoa butter, fat and oil have to meet international quality standards. Quality standards for cocoa products including processing, handling and storing of semi-finished cocoa products are clearly depicted in the United Nations' *Codex Alimentarius* standards for cocoa products. Hence, European buyers will consider the aforementioned during the product assessment. For cocoa

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<sup>10</sup> <https://www.cbi.eu/market-information/cocoa-cocoa-products/semi-finished-cocoa-products>

<sup>11</sup> Please, refer to the manual on cocoa beans for more details on the quality criteria

butter, fat and oil, the standards can be found in the standard for cocoa butter. Table 2 stipulates European Union quality requirement for cocoa butter

TABLE 2: EU DIRECTIVE 2000/36/EC AND CODEX STANDARDS FOR COCOA BUTTER

<b>EU Directive 2000/36/EC</b>	<b>Maximum limit</b>
Free fatty acids (expressed as oleic acid)	Max 1.75%
Unsaponifiable matter (determined using petroleum ether)	Max 0.5%
In case of press butter	Max 0.35%
<b>Codex Standards</b>	
Free fatty acids (method IUPAC (1987) 2.201)	Max 1.75%
Unsaponifiable matter (method IUPAC (1987) 2.401)	Max 0.7%
In case of press butter	Max 0.35%

### Labelling requirements

**Directive 2000/36/EC:** Cocoa butter, fat and oil should be labelled in English to cover the following:

- Product name as stated in the Codex Alimentarius definitions
- Lot or batch code
- Country of origin
- Net weight in kg
- Name and address of manufacturer, packer, distributor and/or importer
- List of ingredients
- Date of processing and packaging
- Instructions for storage and use
- Concerning organic or Fairtrade: name/code of the inspection body and certification number.

### Packaging requirements

**Directive 2000/36/EC:** Cocoa butter fat and oil must be loaded in blocks of 25 kg in polythene-lined fireboard cartons or plastic and the cartons need to be put in larger containers for bulk transport. They can also be transported in their liquid form. Additionally, the product in its liquid form must be transported in heated tanks at a minimum temperature of 350°C and must be shipped in heated stainless-steel tanks.

## De facto mandatory requirements (private standards)

Other requirements include applying hazard analysis and critical control point principles (HACCP), although certain buyers will require certificates regarding food safety and quality management. For example, many retailers and private label manufacturers, depending on the buyer, demand compliance with at least one of the standards below:

- British Retail Consortium (BRC)
- International Food Standard (IFS)
- ISO 22000
- FSSC22000

### Requirements for niche markets

There are requirements for the niche markets for cocoa butter, fat and oil. These requirements are identical to those for cocoa beans i.e. organic and fair and Fairtrade<sup>12</sup>.

<input checked="" type="checkbox"/> What to do	Requirement Level
● Provide suitable overalls without buttons and ideally only those with inside pockets. In addition, effective hair coverage (which may include beards) is required, together with restrictions on the wearing of jewellery, nail varnish and false nails. Loose items must be avoided, other than those essential for the job for example suitable one-piece pens without lids.	Major
● Employees must avoid placing loose items, such as pens or tools, on top of processing equipment.	Major
● The use of glass in the production rooms should be minimized and essential glass items protected. such as lighting. A register should be maintained of glass and hard shatter able plastic items, which must be regularly checked for damage. The use of wood should be very limited, as it is prone to splintering.	Major
● Wooden pallets should be restricted when possible to the end of the production line, where the product is already wrapped and hence protected.	Major

<sup>12</sup> Please, refer to the cocoa bean's manual for more details on sustainability certification and organic certification

- Cleaning materials should be fit for purpose and designed to minimize the generation of physical hazards – for example brushes should have resin-bonded bristles, cleaning scrapers and shovels should be disposed of if they become damaged. Major

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- Regular checks should be carried out to ensure that they are present and in good condition. Tools used in the production room, such as knives, scrapers and scoops should be sturdily constructed, and have clearly identified storage locations. Major

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- Storage containers for ingredients, rework and part processed materials are commonly made of plastic and can become damaged by regular use. Such containers should be on a system of regular inspection, for example after washing, the damaged tubs should be discarded. Major

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- An essential step in the processing of cocoa beans is cleaning, where various methods are used to separate out the foreign bodies, including air separation, vibration, sieving and magnets. Major

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- Control the temperature of the premises and the duration of all production operations Major

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- Carry out preparation and storage of cocoa butter in containers cooled to between 10 °C - 18°C so as to avoid the processed product from melting. Major

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- Avoid wetting of cocoa butter cartons. Major

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- Ensure a cautious stripping, examination and sorting of cartons and their contents according to degree of infestation. Major

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- Ships tanks have to be inspected carefully before shipment to confirm their cleanliness and suitability for carriage of cocoa butter Major

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## What to know

For assurance of the safety of cocoa butter for export, the following are recommended;

- Control of arrival and processing of cocoa butter in factories
- Inspection during packaging, storage and processing of cocoa butter
- Inspection report/certificate before shipment and export to destination markets

The issuance of relevant certificate by Ministry of Food and Agriculture and other certification institutions is dependent on the compliance of all food safety requirements of the destination markets.

## OVERVIEW: SUMMARY OF CERTIFICATION PROCEDURE FOR COCOA BUTTER, FAT AND OIL

No.	Certification/Documents and Relevant Authorities/Institutions	Procedures/Other requirements (when issued)	Fees Payable
01	Factory Inspection (Ghana Standard Authority)	File submission by team from Ghana Standard Authority.	GHC200.00
02	Sample testing for Salmonella (Issued Ghana Standard Authority)	Conduct microbiological test for Salmonella after cocoa butter is processed.	GHC144.00
03	Phytosanitary Certificate (Issued by Plant Protection and Regulatory Service Directorate)	Sampling for inspection prior to certification	GHC180.00 per container
04	Certificate of Origin (Ghana Chamber of Commerce)	Compliance with standards Sampling and conformity of products	GHC110.00 per deal of laden
05	Certificate of Export (Issued by Ghana Standard Authority)	<ul style="list-style-type: none"> <li>● Request for inspection by the exporter;</li> <li>● Filing and recording of certification requests by Ghana Standard Authority)</li> <li>● Signing by applicant</li> </ul>	GHC300.00
06	Registration with Ghana Export Promotion Authority (GEPA) (Issued by Ghana Export Promotion Authority)	ACT 865, 2013 regulate and promote export of local enterprise	GHC200 per annum

**SECTION 3**

# Guide on Good Practices for Cocoa Paste, Wholly or Partly Defatted – HS Code 180320

Cocoa paste is a product obtained from cocoa nib. The nib is obtained from cocoa beans of merchantable quality that have been cleaned and freed from shells as thoroughly as is technically possible with/without roasting, and with/without removal of addition of any of its constituents. Similarly, the product is obtained by partial or complete removal of fat from cocoa nib or cocoa mass. Cocoa paste is similar in all manner to cocoa butter, except that it is a much harder product, with a lower fat content than cocoa butter and, hence, being lower in value. However, it goes through the same difficulties, risks and process of manufacturing.

## 3.1 General National Quality Requirements

Cocoa paste shall conform to the following requirements. Table 3 presents General national quality requirements for cocoa paste in Ghana (Standards Authority Act, 1973 (N. R. C. D 173; Public Health Act, 2012).

TABLE 3: GENERAL NATIONAL QUALITY REQUIREMENTS FOR COCOA PASTE IN GHANA

Characteristic	Limit
<b>Cocoa paste(cocoa mass or liquor)</b>	
Cocoa Shell and Germ	not more than 5% m/m calculated on the fat-free dry matter or not more than 4.5% calculated on an alkali free basis (for Cocoa Shell only)
Cocoa Butter	47-60% m/m
<b>Cocoa paste</b>	
Cocoa Shell and Germ	not more than 5% m/m calculated on the fat-free dry matter or not more than 4.5% calculated on an alkali free basis (for Cocoa Shell only).

## Microbiological requirements

The product should comply with any microbiological criteria established in Table 4.

TABLE 4: MICROBIOLOGICAL LIMIT FOR COCOA PASTE (COCOA MASS OR LIQUOR)

Microorganism	Acceptable
Total viable count (cfu) (Max.)	1.0 x 10 <sup>4</sup>
Yeasts & Moulds (cfu)(Max.)	1.0 x 10 <sup>2</sup>
Salmonella	Absent

## Contaminants

Cocoa paste shall not contain heavy metals in amounts that may present a hazard to human health and shall not exceed the limits specified as follows:

TABLE 5: MAXIMUM LIMITS FOR CONTAMINANTS IN COMPOSITE AND FILLED PASTE

Element	Maximum Limit (mg/kg)
Lead (Pb)	0.5
Arsenic (As)	0.1

## 3.2 Packaging and Labelling

The name used to describe the product including “cocoa (cacao) mass”, “cocoa/chocolate liquor”, “cocoa paste”, “unsweetened chocolate” and “bitter chocolate” shall be used. The package should include name of the product, lot identification and the name and address of the manufacturer, packer, distributor and/or importer shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor and/or importer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents (Ghana Standard, GS 740:2017).



### Main Risks

- Risk of contamination by metal staples used as packaging materials. All ingredients for packaging should be checked on delivery and damaged goods rejected.
- Risk of metal contamination including nuts, bolts and fixings that can wear loose over time and fall into the process, enrober grid wires, which can be prone to breakage and sieves, can themselves become a source of metal contamination if they break.
- Risk of physical contamination including failure of rubber seals and gaskets, the damage and fraying of conveyor belts and the breakage of plastic moulds, mould carriers and other hard plastic items.
- Risk of physical contamination from foreign materials including stones, wood, metal, glass, fibrous material, loose shells, dust and sand. Also, residues such as sand and dried pulp and shells should be removed to avoid further contamination.
- Risk of contamination from cocoa beans

## 3.3 Storage and Transport

Cocoa paste can be transported and stored either in liquid or in solid form (25kg (56 lb) block or as kibbled pieces) in 25kg cardboard boxes with a polyethylene liner or a bag inside. Owing to the cocoa butter properties and the presence of natural antioxidants, cocoa paste has a very good shelf-life. Due to this cocoa paste can be stored for several weeks in liquid form or for more than 12 months as a solid form, providing that it is kept under suitable conditions. Dry containers carrying the cargo should be packed and transported to the load port terminal as late as practically in order to reduce the exposure time to sun/heat before being loaded on board the ship. Also, cargo packers need to consider the time in transshipment hubs where containers are exposed to various weather conditions. The entire routing of the container should be considered in determining appropriate actions to take in reducing the risks.



### Main Risks

- All raw materials should be protected during transport and storage to ensure that foreign materials such as dirt and wooden splinters from pallets.
- Risk of microbial contamination of cocoa paste resulting from wetting of cocoa butter cartons
- Risk of physical contamination from foreign materials including stones, wood, metal, glass, fibrous material, loose shells, dust and sand. Also, residues such as sand and dried pulp and shells should be removed to avoid further contamination.
- Risk of contamination from cocoa beans

## 3.4 Processing



### Main Risks

- Risk of contamination by soft and hard plastic, paper, foil wrapping material, wood, rubber, metal wire and shavings, loose screw, string and threads.
- Operators/workers must act carefully when unpacking and tipping of non-bulk ingredients, such as those delivered in paper or plastic sacks, or boxes, to make sure that wrapping materials, string, knives and ingredient scoops do not enter the process at this stage.
- Any entry point of ingredients into the process, such as bulk ingredient delivery points, dry ingredient tipping stations and fat melters, should be designed to minimize the risk of physical contamination.
- Risk of metal contamination including nuts, bolts and fixings that can wear loose over time and fall into the process, enrober grid wires, which can be prone to breakage, and sieves, which although providing protection against foreign material, can themselves become a source of metal contamination if they break.
- Risk of physical contamination can also occur through the failure of rubber seals and gaskets, the damage and fraying of conveyor belts and the breakage of plastic moulds, mould carriers and other hard plastic items.
- Risk of chemicals contamination of cocoa butter which can also occur during manufacture and processing.
- Risk of chemical contamination as a result of chemicals used for cleaning confectionery equipment can easily happen.
- Chemicals used for maintenance and upkeep of the production environment including paints and sealants, must be of food safe composition.
- Chemicals used for treatment of water in heating and cooling systems can contaminate the product through leakages.

## 3.5 Export of Cocoa Paste Wholly or Partly Defatted

For cocoa paste to enter the EU market, it must abide by mandatory (public standards) requirements clearly stipulated in the Directive 2000/36/EC and de facto mandatory (private standards) requirements<sup>13</sup>. The former are requirements associated with food ingredients specifically traceability and hygiene requirements. Details of such preconditions are summarized below:

### Mandatory requirements (public standards)

- **General Food Law, Regulation (EC) No 178/2002:** This law deals with the primary food safety principles such as traceability
- **Hygiene of foodstuffs, Regulation (EC) No 853/2004:** This demands producers and exporters to comply with the hygienic standards subjected to the hazard analysis and critical control points (HACCP) obligatory for products above elementary production
- **Maximum residue levels (MRLs), Regulation (EC) No 396/2005:** This requirement that spells out the pesticide residue limits is not directly applied to semi-finished cocoa products rather the cocoa beans. However, its compliance can help avoid contamination of the former
- **Contaminants in food, Regulation EC 1831/2003:** This explains the major contamination risks linked to cocoa beans, and associated contamination of processed cocoa products
- **Microbiological contamination, Regulation (EC) No 2073/2005:** There is no particular requirements for cocoa products described under this legislation, however, contaminants including *E. coli*, Salmonella, Enterobacteriaceae, moulds and yeast may lead to market withdrawal
- **Extraction solvents, Directive 2009/32/EC:** This applies to specific cocoa products; such as limit on the use of Hexane (1 mg/kg) during the production of cocoa paste
- **Quality criteria:** Primarily, the quality of cocoa products particularly cocoa paste depends on the quality of cocoa beans hence all the requirements on cocoa must be met including the handling and processing of it<sup>14</sup>. Nonetheless, to access the EU market, cocoa paste, have to meet international quality standards. Quality standards for cocoa products including processing, handling and storing of semi-finished cocoa products are clearly depicted in the United Nations' *Codex Alimentarius* standards for cocoa products. Hence, European buyers will consider the aforementioned during the product assessment. For cocoa paste, the standards can be found

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<sup>13</sup> <https://www.cbi.eu/market-information/cocoa-cocoa-products/semi-finished-cocoa-products>

<sup>14</sup> Please, refer to the cocoa beans manual for more details on the quality criteria

in the Standard for Cocoa (Cacao) Mass (Cocoa/Chocolate Liquor) and Cocoa Cake. The table 4 stipulated European Union quality requirement for products.

TABLE 6: EU DIRECTIVE 2000/36/EC AND CODEX STANDARDS FOR COCOA PASTE

EU Directive 2000/36/EC	Maximum limit
Fat content	Min 53%
Moisture	Max 2.0%
Total plate count	Max 5000 cfu/g
Moulds	Max 50 cfu/g
Yeasts	Max 50 cfu/g
Enterobacteriaceae	Absent per gram
E. coli	Absent per gram
Salmonella	Absent per 750 g
Codex Standards	
Cocoa butter content (AOAC 963.15, 1974 or IOCCC 14-1972)	47–60%
Cocoa shell and germ (AOAC 968.10, 1974 and 970.23, 1974)	Max 5% (on fat-free dry matter)
Cocoa shell (AOAC 968.10 and 970.23)	Max 4.5% (on fat-free dry matter)

### Labelling requirements

Directive **2000/36/EC**: Cocoa paste should be labelled in English to cover the following:

- Product name as stated in the Codex Alimentarius definitions
- Lot or batch code
- Country of origin
- Net weight in kg
- Name and address of manufacturer, packer, distributor and/or importer
- List of ingredients
- Date of processing and packaging
- Instructions for storage and use
- Concerning organic or Fairtrade: name/code of the inspection body and certification number.

## Packaging requirements

**Directive2000/36/EC:** Cocoa paste should be loaded in blocks of 25 kg in polythene-lined fireboard cartons or plastic and the cartons need to be put in larger containers for bulk transport. They can also be transported in their liquid form. Additionally, the product in its liquid form must be transported in heated tanks at a minimum temperature of 35°C and must be shipped in heated stainless-steel tanks.

## De facto mandatory requirements (private standards)

Other requirements include applying hazard analysis and critical control point principles (HACCP), although certain buyers will require certificates regarding food safety and quality management. For example, many retailers and private label manufacturers, depending on the buyer, demand compliance with at least one of the standards below:

- British Retail Consortium (BRC)
- International Food Standard (IFS)
- ISO 22000
- FSSC22000

## Requirements for niche markets

There are requirements for the niche markets for cocoa paste. These requirements are identical to those for cocoa beans i.e. organic and fair and Fairtrade<sup>15</sup>.

 What to do	Requirement Level
● Employee/workers must be provided with suitable overalls without buttons and ideally only those with inside pockets. Also, effective hair coverage is required, together with restrictions on the wearing of jewellery, nail varnish and false nails.	Major
● Employees/workers must avoid placing loose items, including pens or working tools on top of processing equipment.	Major
● Avoid using glass in the production rooms and glass items protected including lighting. A register should be maintained of glass and hard shatter able plastic items, which must be regularly checked for	Major

<sup>15</sup> Please, refer to the cocoa beans manual for more details on sustainability certification and organic certification

damage. The use of wood should be very limited, this is because it can easily be prone to splintering.

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- Wooden pallets should be restricted when possible to the end of the production line, where the product is already wrapped and hence protected. Major
- 
- Cleaning materials should be fit for purpose and designed to minimize the generation of physical hazards – for example brushes should have resin-bonded bristles, cleaning scrapers and shovels should be disposed of if they become damaged. Major
- 
- Regular checks should be carried out to ensure that they are present and in good condition. Tools used in the production room, such as knives, scrapers and scoops, should be sturdily constructed, and have clearly identified storage locations. Major
- 
- Storage containers for ingredients, rework and part processed materials are commonly made of plastic and can become damaged by regular use. Such containers should be on a system of regular inspection, for example after washing, and damaged tubs should be discarded. Major
- 
- An essential step in the processing of cocoa beans is cleaning, where various methods are used to separate out the foreign bodies, including air separation, vibration, sieving and magnets. Major
- 
- Control the temperature of the premises and the duration of all production operations Major
- 
- Carry out preparation and storage of cocoa paste in containers cooled to 10 °C to 18°C to avoid the processed product from melting. Major
- 
- Ships tanks have to be inspected carefully before shipment to confirm their cleanliness and suitability for carriage of cocoa paste Major
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## What to know

For assurance the safety of processed cocoa paste, wholly or partly defatted for export, the following are recommended;

- Control of arrival and processing of cocoa beans in factories
- Inspection during packaging, storage and processing of cocoa butter
- Inspection report/certificate before shipment and export to destination markets (Weights and Measures Degree, 1975, N.R.C.D. 236, Section 18 and 22)

The issuance of relevant certificate by Ministry of Food and Agriculture and other certification institutions is dependent on the compliance of all food safety requirements of the destination markets.

## OVERVIEW: SUMMARY OF CERTIFICATION PROCEDURE FOR COCOA PASTE, WHOLLY OR PARTLY DEFATTED

No.	Certification/Documents and Relevant Authorities/Institutions	Procedures/Other requirements (when issued)	Fees Payable
01	Factory Inspection (Ghana Standard Authority)	File submission by team from Ghana Standard Authority.	GHC200.00
02	Sample testing for Salmonella (Issued Ghana Standard Authority)	Conduct microbiological test for Salmonella after cocoa butter is processed.	GHC144.00
03	Phytosanitary Certificate (Issued by Plant Protection and Regulatory Service Directorate)	Sampling for inspection prior to certification	GHC180.00 per container
04	Certificate of Origin (Issued Ghana Chamber of Commerce)	Compliance with standards Sampling and conformity of products	GHC110.00 per deal of laden
05	Certificate of Export (Issued by Ghana Standard Authority)	<ul style="list-style-type: none"> <li>• Request for inspection by the exporter;</li> <li>• Filing and recording of certification requests by Ghana Standard Authority)</li> <li>• Signing by applicant</li> </ul>	GHC300.00
06	Registration with Ghana Export Promotion Authority (GEPA) (Issued by Ghana Export Promotion Authority)	ACT 865, 2013 regulate and promote export of local enterprise	GHC200 per annum

**SECTION 4**

# Guide on Good Practices for Fresh or Dried Cashew-HS Code 080131

Cashew (*Anacardium occidentale L.*) kernels may be obtained through steaming, shelling, drying and peeling cashew nuts. Cashew nuts shall be reasonably dry, have the characteristic shape grey, dark grey or brownish in colour, practically free from foreign matter. Cashew kernels shall; be whole or broken, be reasonably dry, have the characteristic shape and colour (white, scorched or dessert kernels). Cashew kernels shall be practically free from adhering testa and spots. National level quality requirements in Ghana (Standards Authority Act, 1973 (N. R. C. D 173; Weights and Measures Decree, 1975 (N.R.C.D 326; Weights and Measures (Amendment) Law, 1992 (P.N.D.C.L. 301) are presented in the table as follows:

TABLE 7: QUALITY PARAMETERS

No	Parameter	Limit for cashew nuts (Maximum)	Limit for Cashew kernels (Maximum)
1	Moisture content	10% (m/m)	5% (m/m)
2	Free fatty	-	0.7%
3	Total Aflatoxin	-	10.0ug/kg
4	Peroxide Value	-	1.0meq o <sub>2</sub> /kg
5	Foreign Matter	0.5%	-

Based on the quality requirement parameter above, the kernels are classified as follows.

TABLE 8: CLASSIFICATION OF CASHEW KERNEL

Class	Commercial designation	Description
Class I	White	White, pale ivory, pale ashgrey, light yellow
Class II	“Scorched” or “lightly blemished”	Light brown, deep ivory or yellow in colour
Class II	“Scorched seconds” or “dessert”	Light brown, amber, light blue, deep brown, deep blue, discoloured, black spotted, immature, shriveled, blemished and stained kernels are permitted

## 4.1 Production and Harvesting of Cashew

A cashew tree starts producing fruits at 3 to 5 years, but grafted seedlings start fruiting in a year or two. Fruits mature between 90-100 days and drops down to be harvested when they are ripe.



### Main Risks: Production

- Pest and disease infestation (mosquito bug, stem borer or branch girdler) of the nuts as a result of overcrowding of trees in cashew farms that serve as habitats for pests and diseases.
- Risk of chemical contamination through over-drying of nuts on scorched sun which enable the nutshell liquid to sink into the cashew kernel.
- When the fruits are piled and the nuts are not detached quickly, there is a chemical reaction build up resulting in heat within the heap. This deforms the quality of the nuts.
- Risk of microbial infestation of cashew nuts (mould) which reduces the quality when nuts are not properly stored in well-ventilated stored rooms.
- Nymphs and adults have piercing and sucking mouth parts, they suck nutritious juice from leaves, young shoots, pinnacles and young nuts and apples. It causes damage to the shoots and pinnacles.
- Chemical contamination because of the use of unapproved agrochemicals on cashew nuts. This can affect the quality of the kernel which could lead to rejection of a whole consignment of produce from Ghana by the EU.
- Risk of chemical contamination of cashew nuts and kernels shall by pesticide residue if there is over application beyond the maximum residue limits



## Main Risks: Harvesting<sup>16</sup>

- Risk of biological contamination with mould arising from pods kept over a long period of time
- Risk of biological contamination from improper sorting of rejected nuts
- Risk of physical contaminants from broken pieces and rust particles from poorly maintained machetes, instruments for cracking the nuts.
- Risk of biological contamination from workers handling the cashew nut and collection.
- Risk of biological contamination from cross-contamination from diseased fruits to disease-cashew nuts.
- Risk of biological contamination from insect infested nuts, or diseased nuts
- Risk of chemical contamination by heavy metals and mycotoxins from mould infections.
- Risk of physical contamination from metals, stones and foreign materials during picking and cracking of nuts.

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<sup>16</sup> The main risk at these stages are similar to those stated in 1. International Trade Centre UNCTAD/WTO. (2001). Cocoa: a guide to trade practices. United Nations Publications. 2. Sectorial assessment guide for cocoa in Ghana., 2013.

## 4.2 Transport of Cashew

Raw cashew nuts are brought from various points in the district to the warehouse of buying companies to be transported to Accra for export. At the warehouse the nuts are offloaded from the trucks onto a large cemented floor to be sorted and properly dried if not dried by the farmers.



### What to know

- Pathogens or chemicals from previous loads contaminate the cashew bags during transportation by; being circulated in the air; condensation dripping into the bags; debris containing pathogens; manure accumulation from previous livestock and poultry transportation
- Excess debris in the vehicles creates a higher risk that foreign material could be embedded in the bags
- Vehicles in bad state create high risk for contamination from material such as broken metal parts, glass from windows.
- Contamination can also occur as a result of the previous transport of hygienically hazardous substances and other merchandise such as cements, fertilizer, agrochemicals
- There must be a written contract covering the state of hygiene of the vehicle
- Vehicles used to transport cashew nuts should be well ventilated to prevent mouldiness.

## 4.3 Packaging, Labelling and Storage of Cashew Nuts

Cashew nuts are normally packed in sound single jute bags with a net weight of 80kg. Cashew kernels is packed in sound leak-proof containers with a net weight of 11.34 kg (25lb)  $\pm$  0.5 or 22.68 kg (50lb)  $\pm$  0.5 in each container and sealed after infusion with an inert gas like carbon dioxide or nitrogen. Two packs of 11.34 kg (25lb)  $\pm$  0.5 of the same grades or a single pack of 22.68 kg (50lb)  $\pm$  0.5 are packed in carton for export. The net weight of each carton is thus 22.68 kg (50lb). In labelling, each carton shall bear in prominent, legible and indelible marking, the following information (Ghana Standards Board (Food, Drugs and Other Goods) General Labeling Rules, 1992 (L.I. 1541). Raw cashew nuts packaged in bags shall be accompanied with the following information. (i) Name of the produce / product and the trade name or brand name, if any; ii. Name and address of producer / processor or packer; iii. Net weight (kg); iv. Country of origin; v. Grade designation (for cashew kernels); vi. Best before date (for cashew kernels) vii. Crop year (raw cashew nuts) viii. Any other marking required by the purchaser, such as date of packing etc.



### Main Risks

- Bags made with inappropriate material (polythene bags) can contaminate cashew nuts from chemicals residues in the bags leaching into the nuts
- Physical contamination by improper handling or accidents (broken containers)
- Alteration of the taste of nuts when kept in cool environments below room temperature
- Risk of contamination of the nuts if the workers have open wounds or cuts, unless the injury is protected under waterproof materials.
- Risk of physical contamination through metals such as wear rings, earrings, watches etc.
- Only properly dried nuts should be packed. Packaging is done only in jute sacs for proper ventilation so that moisture content of nuts does not fluctuate
- Microbial contamination as a result of manipulation of products by non-medically monitored personnel, wearing dirty clothes and not respecting basic hygiene regulations (washing of hands)
- Packaging materials can represent a food safety risk if they contain substances harmful to humans that could be transferred to the cashew kernels at levels high enough to represent a risk to health of consumers
- Packaging should be done on pallets also for the reason of proper ventilation and prevention of mould development

To prevent contamination of cashew nuts and kernel during storage, the following procedures/precautions must be adhered to:

- Jute bags are the best for storing cashew because they help prevent excess buildup of moisture
- Empty rice bags can be used to store cashew nuts, but for only a few weeks and when jute is not available.
- If rice bags are used, they should be left open when filled for three days before sewing to minimize perspiration during storage.
- A storage area should have a dry floor, a secure roof, and good ventilation.
- The bags should be stocked on raised platform such as wooden pallets or logs to prevent moisture entering the nuts from the floor
- Enough space should be left between stacks and walls and also below the roof to allow free circulation of air as well as for individuals to walk about and check the condition of the stacks

## 4.4 Processing of cashew nuts

Fruits are received after harvesting and stored in cool or well-ventilated place. Containers must be washed before taking to the field to avoid contamination by molds, which may speed deterioration process during transportation and storage. The nuts are detached either by nylon string or manually operated devices to detach the nuts by means of a clear cut at the point where the nuts are joined to the apple. Washing is done by dipping the nuts in vinegar or sodium/potassium meta bisulphite for about 15 to 20 minutes in a concentration of 200ppm (0.02%) of hydrochloride solution or active chlorine. The dried nuts are then steamed and shelled. Drying and peeling of the nuts to get the kernels are done immediately to avoid microbial contamination.



### What to know

- Physical Damage to workers through cracking and shelling device can cut the fingers if not properly handled.
- Risk of contamination of the cashew nuts and kernels by heavy metals if workers fail to comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission.
- Risk of microbial contamination due to improper storage of kernel during processing.
- Risk of contamination by smoke during processing.

## 4.5 Export of Cashew Nuts

Raw cashew nuts are bagged from producing centers, mostly located in Brong Ahafo region in Ghana, to main ports for onward shipment. About 40,000 to 50,000 tons of raw cashew nuts are transported to Accra to be exported to India and Europe. Nearly 95 percent of Raw Cashew Nuts (RCN) is exported, primarily to India.

The mandatory and de facto mandatory requirements needed to be fulfilled prior to exporting cashew nuts into the EU market are summarized below<sup>17</sup>:

### Mandatory requirements(public standards)

**Contaminants control (Regulation (EC) No 1881/2006):** The European Commission Regulation establishes maximum levels for contaminants in cashew nuts. These include the presence of mycotoxins, pesticide residues, micro-organisms, and heavy metals.

- **Mycotoxins:** The presence of mycotoxins (aflatoxins, in particular) is the main reason why nuts may be banned on the European market.
- **Pesticide residues:** Cashew nuts that contain a higher concentration of pesticide residues than allowed are withdrawn from the European market.
- **Microbiological contaminants:** Low levels of salmonella and E. coli in cashews, is an important cause of foodborne illness.

### De facto mandatory requirements (private standards)

#### Quality requirements

This is identified by: the proportion of damaged produce, the number or weight, shape and colour though not exhaustive. The aforesaid requirements are set up in many standards however, the most largely used standard in Europe is the one established by the United Nations Economic Commission for Europe (UNECE)<sup>18</sup>.

#### Food safety certification

Many buyers from Europe require food safety certification sanctioned by the Global Food Safety Initiative (GFSI). Regarding cashew, most common ones that are recognized include International Featured

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<sup>17</sup> <https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/cashew-nuts/market-entry>

<sup>18</sup> This Agricultural Quality Standards are based on document ECE/TRADE/C/WP.7/2013/26

Standards (IFS), British Retail Consortium Global Standards (BRCGS) and Food Safety System Certification (FSSC 22000) though not complete as food certification systems are regularly under review

### Packaging requirements

There is no established law for the size of packaging of cashew for exports however, 10 kg to 25 kg polybags is the most accepted form of packaging.

### Labelling requirements

Cashew nuts being exported to the EU market need to follow the established labeling requirements.

### Sustainability certification

Fair Trade International has set up standard for small-scale nut producer organisations which establishes protective measures for cashew nut processing companies. Specifically, the standard indicates the terms of payment and FairTrade Minimum Price for traditional and organic raw cashew nuts kernels from Africa

### Organic certification

Cashew nuts that have been organically produced must possess an electronic certificate of inspection (eCOI) before they can be exported to European market

### Ethnic certification

Religious demands impose certain requirements on cashew exporters. For example, the Islamic dietary laws (Halal) and the Jewish dietary laws (Kosher) impose specific dietary restriction. Hence, those who desire to target Jewish or Islamic ethnic niche markets should consider implementing Halal or Kosher certification schemes



## What to know

- **Aflatoxin (Regulation (EC) No 1881/2006):** The level of aflatoxin B1 in cashew nuts must not exceed 5 µg/kg and the total aflatoxin content (B1, B2, G1 and G2) must not exceed 10g/kg.
- **Pesticide residue:** The EU frequently issues a list of pesticides which are endorsed for use in the European Union. This is regularly updated. In 2019, the European Commission established the under listed pesticide residue limits and effective dates for cashew nuts. This can be found in table 3.

TABLE 10: PESTICIDE LIMITS PUBLISHED FOR CASHEW NUTS IN 2019

Pesticide name	Residue limit	Effective date
Fenpicoxamid	0.01 ppm	January 2019
Lambda-cyhalothrin	0.01 ppm	January 2019
Azoxystrobin	0.04 ppm	April 2019
Fenpyroximate	0.05 ppm	April 2019
Fosetyl-Al	500 ppm	April 2019
Diphenylamine	0.05 ppm	May 2019
Triflumizole	0.02 ppm	May 2019
Triflumuron	0.01 ppm	May 2019
Bispyribac	0.01 ppm	July 2019
Denatonium benzoate	0.01 ppm	July 2019
Fenpyrazamine	0.01 ppm	July 2019
Aclonifen	0.01 ppm	July 2019
Flurochloridone	0.01 ppm	July 2019
Quizalofop-P-ethyl	0.01 ppm	July 2019
Quizalofop-P-tefuryl	0.01 ppm	July 2019
Tebufenozide	0.01 ppm	July 2019
Propaquizafop	0.01 ppm	July 2019
Etofenprox	0.01 ppm	August 2019
Paclobutrazol	0.01 ppm	August 2019
Penconazole	0.01 ppm	August 2019
Bromadiolone	0.01 ppm	August 2019
Bromuconazole	0.01 ppm	August 2019
Pyridaben	0.01 ppm	August 2019
Fenbutatin oxide	0.02 ppm	August 2019
Buprofezin	0.01 ppm	August 2019
Diflubenzuron	0.01 ppm	August 2019
loxynil	0.01 ppm	August 2019

Furthermore, the European Safety Authority proposed a reduction of maximum residue level for the pesticide Fenbuconazole from 0.05 ppm to 0.01 ppm and for the pesticide Metam from 0.02 ppm to 0.01 ppm. Moreover, two pesticides were banned: Ethoprophos and Chlorothalonil.

### Microbiological contaminants

Cashew nuts processors should consider salmonella and E. coli as major public health risks in their hazard analysis and critical control point (HACCP) plans. Also, control moisture level during storage and transport (<65% relative humidity) in order to avoid the product being damaged by mould and enzymatic changes

## Packaging

To extend the shelf life of cashew nuts, packaging bags are often vacuum-sealed by extracting the air and injecting carbon dioxide and nitrogen. They can also be packaged in airtight tins. Using paper or stamps bearing trade specifications is permitted, if the printing or labelling has been done with nontoxic ink or glue. The packaging is often formed in a cubic shape in order to efficiently use the pallet and container space.

## Labelling

Inscribe cashew either “cashew nut kernels” or “cashew nuts” on the label. Supplementary trade names connected to form can be used in addition to “cashew nut kernels”. Generally, export package labelling should indicate the crop year. Information regarding bulk packaging has to be indicated either on the packaging or in ancillary documents. Bulk package labelling must include the following information:

- Name of the product
- Lot identification number
- Name and address of the manufacturer, packer, distributor or importer
- Storage instructions
- The lot identification number and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark.

Concerning retail packaging, product labelling must conform to the European Union Regulation on the provision of food information to consumers. Particularly the following requirements are to be complied with:

- Requirements for nutrition labelling
- Origin labelling
- Allergen labelling and clear legibility (minimum font size for mandatory information).

**What to do (all stages)**

## Requirement Level

- |  |       |
|--|-------|
| ● Conduct hygiene risk assessment of personnel, equipment and transport  | Major |
| ● Conduct regular training in hygiene for all personnel who come into contact with the cashew beans to be clean during pod breaking, fermentation and drying. Records of training must be available. |       |
| ● Keep all equipment (basket, sacks, drying mats, etc) coming into contact with wet or dry cashew beans clean and free from dirt.  | Major |
| ● Cross contamination of fermented beans with lubricants, smoke, fuel, and any other chemical or off-flavour materials must be prevented.  | Major |
| ● Check to ensure no evidence of storage of items other than cashew nuts (food, oil, fuel, motorbikes, cooking facilities)   | Major |
| ● Ensure the technically responsible person for application is able to demonstrate competence in the use of pesticides.  | Major |
| ● Organize training workshop for cashew farmers on the correct use of agrochemicals  | Major |
| ● Investigate and ensure that monitoring equipment for control of critical parameters, such as humidity, temperature, and ventilation are functional   | Major |
| ● Carry out pre-shipment analysis of physical, chemical, pesticide residue level   | Major |
| ● Record the batch of cashew nuts being shipped with all traceability records.   | Minor |
| ● Organize a pre-trip inspection of containers (PTI) if containers are to be used  | Minor |
| ● Present EUR certificate or certificate of origin, phytosanitary certificate.   | Major |

- Treatment hatches and record the dates, PPP used, quantity, active ingredient, operator details, method used and clearance for loading of hatches after spraying Major
- 

- Provide job certification report which is endorsed by a representative of the client Minor
- 

- Define critical control points (HACCP) by implementing food management principles Major
- 

- Provide an electronic certificate of inspection for organically produced cashew nuts Major
- 

- Provide food certification certificate Major
-



## What to record (all stages)<sup>19</sup>

- Signed training records indicating the nature of training, the topics covered and the resource persons used.
- Records of all plant protection product applications, including the location, dates, the reason for application, type and quantity, method (foliar or soil), and the person who applied them.
- Records of PPP type used, date, quantity and rate of application, requisition and approval records; storage, formulation and disposal methods, and location of containers.
- Calibration sheets for knapsacks and motorized mist blowers used for foliar fertilizer, herbicides, fungicides and insecticides.
- Plant population, plot identify, and variety of crop, dates.
- List of approved PPPs
- Participant assessment sheet/forms of the training received
- Time of drying
- Employee files (personal records, if any)
- Employee hygiene training (personal records, if any) (Regulation (EC) No. 178/2002)
- Regular checks, maintenance programme and service files
- Cleaning and disinfection schedule for floors, walls, containers
- Cleaning record
- Hygiene procedures and training records on hygiene
- Records of dates, names and active ingredients of methods of pest control, personnel, volume of produce/shed used in spraying, fogging or fumigation.
- Records of movement of cashew nuts in out of warehouse to processing centers
- Record of inspection, grading and sealing issued by QCC
- Incoming Raw Material Inspection checks (product name, date, time, temperature, batch details etc)
- Delivery Vehicle inspection Checks (Temperature, Conditions of arrival, sign of pests)
- Transporting containers should be cleaned and disinfected infectively, temperature, humidity and other conditions checked.

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<sup>19</sup> These requirements are similar to International Trade Centre UNCTAD/WTO. (2001). Cocoa: a guide to trade practices. United Nations Publications. The requirements here are nearly same for cocoa beans and cashew nuts

## OVERVIEW: SUMMARY OF CERTIFICATION PROCEDURE FOR CASHEW NUTS

No.	Certification/Documents and Relevant Authorities/Institutions	Procedures/Other requirements (when issued)	Fees Payable
01	Phytosanitary Certification (Issued by Plant Protection and Regulatory Services Directorate (PPRSD).	Sampling for inspection prior to certification	GHC10.00 Per ton
02	Ghana Standards Authority Export Certificate (Issued by Ghana Standard Authority)	Compliance with standard sampling and conformity of the cashew kernel	GHC2000.00 per consignment
03	Certificate of incorporation and certificate to commence business required (Issued by Registrar General's Department)	After complying with all the relevant requirements of Section 27 and 28 of Companies Act, 1963. Issued to start business operations in Ghana	GHC50.00
04	Registration with Ghana Export Promotion Authority (GEPA)	Act 865, 2013 regulate and promote export of local enterprise	GHC5,000.00 for two years
05	Evidence of registration with an Exporter Association	After submission of filled documents	
06	Registrar general certificate of incorporation	After meeting all relevant requirements under companies Act, 1963 (Act 179)	GHC 250
07	Export license (Issued by Quality control company)		GHC15.00 Per ton

## SECTION 5

# Guide of Good Practices for Prepared or Preserved Tuna/Skipjack/Bonito – HS 160414

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Processed tuna is prepared from clean, wholesome tuna of the species (including *Thunnus alalunga*, *Thunnus albacares*, *Thunnus atlanticus*, *Thunnus maccoyii*, *Thunnus obesus*, *Thunnus thynnus*, *Thunnus tonggol*, *Euthynnus affinis*, *Euthynnus alleteratus*, *Euthynnus lineatus*, *Katsuwonus pelamis*, *Sarda chilensis*, *Sarda orientalis*, *Sarda sarda*) which may be fresh, raw frozen or pre-cooked and fit for human consumption. The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable Ghana Standards (Standards Authority Act, 1973 (N. R. C. D 173). Other requirements to prevent defectives of the process tuna include:

- The cans/pouches should not show any sign of swelling, seam defects, corrosion or other deformation when observed externally.
- The finished product should have the flavour and colour characteristic of the species. The flesh shall be firm in texture.
- On opening, the cans/pouches should be well filled with fish. The products should be practically free from skin (except when presented as 'skin-on' or packed, scales, prominent blood streaks, blood clots, bones bruises, the red muscle known as red meat and honey-combing).

The harvested tuna is supplied by independent wholesalers or artisan fishermen sometimes from Ghana or other neighbouring countries. The tuna is frozen using ice before being transported to processors by integrated shipping lines, who own vessels. In most cases, all operations of preparation and transformation are done onboard the vessel. The products are then stored at 15°C.

## 5.1 Processing

These operations are done by qualified employees at the time of reception, in the reception hall/room. The tuna is then sorted and classed according to their state, sizes and freshness. The tuna that don't meet the criteria of freshness are rejected and generally sold in markets for local consumption. The most common criteria for rejection are bruising in the abdominal cavity of the fish as a result of poor storage and transportation. Grading responds often to the commercial requirements of the clients. The fish are arranged in plastic baskets belonging to the companies.

### Washing and Weighing

This is a very essential aspect of processing. It happens in the processing room, normally in bowls full of ice-cold water and chlorine into which the plastic baskets filled with tuna. The water used for washing are renewed periodically. The baskets are also put in the iced water to rinse them. Some companies use machines for rinsing.

### Freezing

The loaded palettes are taken to the tunnels for freezing at -20°C for 5hours. Demoulding consists of detaching the fish from the freezing baskets. It is carried out concomitantly with glazing which consists of plunging the crates of tuna in a tunnel directly into a big tub of ice water. This allows for the formation of a protective film of ice which protects the fish against freeze-drying and oxidation.

### Packaging

The packaging materials is made of substances which are safe and suitable for their intended use. Tuna is packed in suitable internally lacquered cans/pouches and the cans/pouches sealed hermetically. The lacquer used should be such that it does not impact any unpleasant flavour to the contents of the can/pouch and does not peel off during processing and storage. The lacquer should not be soluble in brine to any extent. The products must be packed in containers sufficiently strong to withstand rough handling rail, road and sea transport without damage to their contents. For canned tuna, the exterior of the can shall be free from dents, rusts, perforations and seam distortions. The interior of the can shall have no visible rusting.

### Labelling

The packaged product shall bear a label and all relevant information. The following information shall be marked legibly on the products. (a) Name of product, along with brand name, if any b) The form of presentation pictorially or otherwise c) List of ingredients d) The nature of the packing medium used e) Presence of known or potential allergens f) Net content in S.I. units g) Drained weight of the contents of the can/pouch in S. I.units h) Name and address of manufacturer/distributor/packer i) Country of origin j) 'Best before date' (dd/mm/yy) and storage instructions k) Batch number or lot identification l) Instructions for use.



## Main Risks

- Microbial contamination by possible presence of salmonella sp. and associated bacteria
- Microbial contamination because of the use of contaminated water or salt
- Microbial contamination as a result of contact with dirty surfaces such tables, containers and films
- Microbial contamination as a result of manipulation of products by non-medically monitored personnel, wearing dirty clothes and not adhering to food hygiene regulations
- Physical contamination by the mishandling of produce and accidents.
- Bacterial infestation and enzyme action as a result of an icing failure or slowness of operations (storing, freezing, packaging).
- Chemical contamination (histamine) resulting from a cooling failure of tuna products (glazing).
- Change of the texture and taste of the tuna because of slow cooling/freezing.
- Risk of possible injury by available machinery
- Risk of contamination if the work environment is not hygienically secured. To avoid contamination, foot baths are to be used, taps are operated by foots gloves and other P.P.E.'s are used amidst a cold room temperature

## 5.2 Warehousing and Shipping

The exporter after receiving the tuna on land, the processed frozen tuna is kept in a cold room at temperature of -15°C. The processed tuna is then packed in containers for storage at -15°C for export to European countries and Canada. Due to the risky nature of processing tuna, it is required that the cooling chains are not interrupted during storage.



### Main Risks

- Alteration by the interruption of the cooling chain because of storage of products in cold rooms in high temperatures (higher than +15°C).
- Alteration by the interruption of the cooling chain because of a long wait before loading.
- Alteration by the use of vehicles without proper waterproof bodies and cooling devices.
- Alteration caused by the interruption of cooling chain because of storage in cold rooms with high temperatures (more than -15°C)
- Alteration caused by the interruption of cooling chain because of a long wait before loading in containers
- Alteration by the interruption of the cooling chain because of a lack of storage infrastructure at the industrial fishing wharfs and in factories

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## 5.3 Export of prepared or preserved Tuna, Skipjack/Bonito

Tuna, skipjack/bonito being exported to European Union (EU) market must meet certain requirements. These requirements are classified into mandatory (public standards) and de facto mandatory (private standards) as discussed below<sup>20</sup>:

### Mandatory Requirements (public standards)

#### Catch certificate

Fishery products must be caught by approved vessels (wild catch) or produced in registered farms (aquaculture). As per Council Regulation (EC) No 1005/2008, a catch certificate should accompany fishery product including prepared or preserved Tuna/Skipjack/Bonito being imported into the EU market. This is required to combat illegal, unreported and unregulated (IUU) fishing. Failure to do so will lead to a temporary ban from the seafood market in the EU.

#### Health certificates

Fishery products must be accompanied by proper health certificates. As per Council Directive 2006/88/EC, this is required to validate that they comply with the standards for export to the EU.

#### Hygiene

As per Regulation (EC) No 1831/2003, these requirements are in connection with the control of contaminants, microbiological contamination as well as the execution of Hazard Analysis and Critical Control Points (HACCP). Additionally, they involve packaging and storage such as controlled temperatures and proper transportation.

#### Contaminants

Exporters need to check contaminants that enter that Tuna/Skipjack/Bonito during the various levels in the process or environmental contamination. Examples include heavy metals like lead, cadmium and mercury; dioxins and pentachlorophenol (PCP) in addition to Polycyclic Aromatic Hydrocarbons (PAH). These contaminants are restricted by the EU legislation.

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<sup>20</sup> <https://www.cbi.eu/node/598/pdf>

## Microbiological contamination

This is one of the health standards being regulated by the EU Regulation ((EC) No 2073/2005). Microbiological contamination such as a high histamine level can be caused by poor temperature management and therefore needs to be controlled.

## Traceability and labelling

Traceability rule is strictly enforced by the EU under the “Directive No 1379/2013.” In this regard, labels must provide exact information on harvesting and production of the discussed product. Particularly, preserved or preserved Tuna/skipjack/Bonito being exported to EU must have the following labelling requirements:

- A list of ingredients
- The net quality
- The date of minimum durability (Best before date)
- Any special storage conditions or conditions of use
- The name and business name and the address of the packager or of a seller established within the community
- The name under which the product is sold
- Particulars of the place of origin or provenance
- Instructions for use when it would be impossible to make appropriate use of the foodstuffs in the absence of such instructions
- The approval number which has been issued by the European Union to the production facility (in case of processing)
- List of allergens (Directive No 1169/2011)

# De facto mandatory requirements (private standards)

## Food safety certification

Exporters of seafood products including Tuna/Skipjack/Bonito are required to provide food safety certificate as an assurance to enter the EU market. The most popular certification schemes are the International Featured Standards (IFS) and British Retail Consortium (BRC). Both certification schemes are based HACCP and are very much alike in many respects

## Eco-labelling

Eco-labelling, which is a new environmental policy instrument, is quickly gaining grounds in the EU especially in the western and northern Europe (such as the Netherlands and Germany). Concerning wild caught fishery products, like Tuna, MSC (Marine Stewardship Council) is the major certification

scheme. Additional consumer eco-labels for fishery products include Friend of the Sea, Dolphin Safe, RSPCA Freedom Food and the Global G.A.P. Friend of the Sea Add-On Module for Aquaculture. Although, eco-labelling is not largely employed in the entire EU, it is something that should be considered by exporters, especially those who want to enter the German and Dutch fishing markets.

 <b>What to do</b>	Requirement Level
<ul style="list-style-type: none"> <li>● Undertake periodic medical check-up for all employees involved in handling of tuna processing.</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Carry out training for personnel on good practices for handling tuna and also on body hygiene and clothing used by employees.</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Provide personnel with clean and appropriate clothing for work for employees</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Install enough hygienic hand washing devices and hand sanitizers in important places, toilets, workshop access areas, handling rooms, near work tables.</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Ensure compliance with good handling and food hygiene practices for all personnel</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Choose suppliers of all raw materials (fish, salt, etc.) according to criteria compliance with the adherence to food safety especially in terms of registration and issuance of tuna licences</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Keep premises and equipment by cleaning and/or disinfecting before and after use</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Check with tuna suppliers for origin of products before purchasing</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Test samples for heavy metal in the case of importation of processed tuna</li> </ul>	Major
<ul style="list-style-type: none"> <li>● Take a sample from the raw material for histamine analysis on Sensitive species.</li> </ul>	Major
<ul style="list-style-type: none"> <li>● The average histamine content of a sample unit of nine (9) cans/pouches per lot tested shall not exceed 100 ppm. A maximum</li> </ul>	

of two samples may exceed 100 ppm, but no one can/pouch shall exceed 200 ppm.

● Define supplier specifications for each consumable	Recommendation
● Implement a preventive maintenance program for all equipment	Minor
● Implement a calibration and verification program for measuring instruments (thermometer, balance, etc.)	Major
● Use clean water for all product processing operations	Major
● Carry out preparation operations for fresh and frozen products in premises cooled to 15 °C or, failing that, use predictive microbiology to determine the maximum acceptable handling times for each area	Major
● Maintain the cleanliness of ice packs used for the cooling/icing of processed tuna	Minor
● Control the temperature of products at each stage of processing	Major
● Control the temperature of the premises and the duration of all production operations	Major
● Freeze the tuna, without delay at a core temperature of less than - 15°C	Major
● Carry out the operations of loading trucks for transporting finished products so as to protect the products from bad weather and not to encourage a break in the cold chain	Major
● Pack the containers or load the trucks in a room protected from bad weather	Minor
● Provide a catch certificate	Major
● Provide health certificate	Major



## What to know

For assurance the safety of processed tuna for export, the following are recommended;

- Control of arrival and processing of tuna in factories
- Inspection during packaging and processing of tuna
- Inspection report/certificate before shipment and export

The issuance of relevant certificate by Ministry of Fisheries and other certification institutions is dependent on the compliance of all food safety requirements of the destination markets.

## OVERVIEW: SUMMARY OF CERTIFICATION PROCEDURE FOR TUNA/SKIPJACK/BONITO

<b>No.</b>	<b>Certification/Documents and Relevant Authorities/Institutions</b>	<b>Procedures/Other requirements (when issued)</b>	<b>Fees Payable</b>
01	ISO certificate for tuna export (Issued by SDF)	Submission of all relevant file	GHC1000.00
02	Certificate of Fishery Export (Ministry of Fisheries)	Compliance with standards Sampling and conformity of products	GHC700.00
03	Inception certificate (Issued by SDF)	Laboratory control to detect physical, chemical or biological dangers.	GHC1000.00

# Conclusions

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The manual identifies the good practices of safety and hygiene procedures of five food products for export to European Union. These products are (i) Cocoa beans, whole or broken, raw or roasted (ii) Cocoa butter, fat, and oil (iii) Cocoa paste, wholly or partly defatted (iv) Fresh or dried cashew nuts, in shell (v) Prepared or preserved tuna/skipjack/bonito. This is done at all stages of the product marketing circuit (production, harvesting, transport, packaging and export) through the understanding and monitoring of the various stakeholders in agriculture sectors in Ghana. The manual is based on findings from studies conducted along the selected food products to promote the competitiveness of SMEs so that they can better leverage the Europeans Union market opportunities.

Apart from cocoa beans, which is traditionally managed by COCOBOD, which has well laid down quality control mechanism managed by cocoa quality control, a department under the COCOBOD, other products (i.e. cashew, tuna, cocoa paste and butter) have several disjointed institutions responsible for quality and food safety measures. For instance, even though the stakeholders along the cashew value chain are trained on food safety measures, there are no specific laws, regulation and directives for SME's to follow in order to adhere to SPS measures. For convenience and efficiency, it would be ideal to integrate and merge the various institutions responsible for implementing Sanitary and Phytosanitary (SPS) measures in Ghana so as to avoid overlapping of functions by various organizations and authorities. This will ensure easy monitoring and compliance of various stakeholders – with respect to Sanitary and Phytosanitary measures.

