

**DRY BEANS-
PACKAGING (CODE OF PRACTICE)**

DRAFT

Son 
STANDARDS ORGANIZATION OF NIGERIA

**Lagos Operational Office
Headquarters**
Plot 13/14 Victoria Arobieke Street,
Off Admiralty Way
Lekki Peninsula Scheme 1
Lekki, Lagos, Nigeria

Corporate Headquarters
Plot 1687
Lome Street,
Wuse, Zone 7
Abuja, Nigeria

Foreword

The Standards Organization of Nigeria was established by an enabling Act 56 of 1971. It is a national standardization body in Nigeria.

The work of preparing Nigerian Industrial Standards (including codes) is normally carried out by technical committees composed of stakeholders, academia, researchers, producers and other interested persons, who are involved in the scope of the standard. All parties are given equal opportunity to vote on the draft Nigerian Standard during the enquiry stage, taking into consideration the importance of harmonizing the Nigerian Industrial Standard with the International, regional and national standards, for the purpose of eliminating technical barrier to trade and facilitating the International trade.

Dry beans are the most important food legumes for direct consumption in the world (ARS, 2012). Dry edible beans have been characterised as a nearly perfect food because of the high protein fibre, prebiotic, vitamin B and divers micronutrient content.

This code is intended to prescribe guidelines to achieve compliance with the standards for beans packed in glass, jars, metal cans, retortable pouches and other appropriate packaging containers .It was prepared to establish a quality and safety criteria to facilitate the production and packaging of quality dry beans.

It is believed that through continuing compliance to the requirement of this code, fair practices both in the local production / importation of dry beans will be ensured. While elaborating this code of practice, references were made to data from relevant stakeholders, academia as well as other national and international standards all of which are herein acknowledge.

1. Scope

This Nigeria Industrial Code of Practice prescribes requirements for processing and packaging of dry beans intended for human consumption.

It covers hygienic practices for packaging, of dry beans.

It applies to direct and indirect consumers of beans. It also applies to producers of dry beans and is aimed at providing safe and quality dry beans.

It excludes harvesting, handling, storage and transportation of dry beans as well as **further** processing of dry beans into other products.

2. Normative Reference:

The following referenced documents are indispensable for the application of this document.
Use standardised text

ARSO 864 (2012) (English): Dry beans- Specification

Codex Alimentarius, 1983

ISO 6322-1:Storage of cereals and pulses – part 1: General recommendations for the keeping of cereals.

USDA Commodity requirements document – Dry edible beans, 2013.

3. Definition

For the purpose of this code the following definitions shall apply.

3.1 Damaged beans:

beans and pieces of beans that are materially damaged or discoloured by weather, disease, weevils or other insects, or other causes so as to materially affect the appearance and quality of the beans

3.2 Beans:

the dried mature seeds of *Phaseolus vulgaris* Linn.

3.3 Waste

product rejected owing to contamination or adulteration or of unknown history that renders it unsuitable for use as human food

3.5 Foreign matter:

any extraneous matter than dry beans or other food grains comprising of

(a) "inorganic matter" includes metallic pieces, shale, glass, dust, sand, gravel, stones, dirt, pebbles, lumps or earth, clay, mud and animal filth, etc;

(b) "organic matter" consisting of detached seed coats, straws, weeds and other inedible grains, etc.

4.

5 Building Requirements

5.1. Premises

Premises where dry beans is processed and packaged shall be of sound, weather-proof construction and maintained in good repair.

5.1.1 They shall be suitable for the operations and process to be carried out in them: storage, processing, manufacture, packing, warehousing.

5.1.2 The perimeter shall be free from any accumulation of machinery, equipment, waste or overgrown vegetation.

5.1.3 The premises shall be secure against the ingress of all types of pests – birds, animals and insects. Windows should be fixed shut or be covered with suitable protective mesh to prevent ingress of pests and should have their sills sloped to prevent their being used as shelves. All externally opening doors should be close fitting and have automatic closure devices, plastic strip curtaining, double doors or air screens. All other openings should be sealed.

5.2. Services

The supply and distribution of services – air, water, power and drainage – should not allow dirt to accumulate or pose a contamination risk. All effluent and waste pipes should be connected to a sewage system large enough to carry peak flows and constructed to avoid contamination of potable water supplies.

5.3 Layout

All processing areas should be laid out to allow for a suitable sequence of processing steps in order to maintain throughput efficiently and prevent cross-contamination. The design and layout of the raw bean area are of critical importance for the prevention of cross-contaminations.

6 Room requirements

6.1. Food rooms

Any room where packaging that have been removed from their original wrapping materials, or semi-finished products are stored, conditioned or processed should be designated a food room.

Food rooms should be clearly defined and physically separated from other areas of the premises such as laboratory and maintenance. Strict hygiene rules should apply at all times in such areas.

6.2 finishings

Where appropriate, floors should be made from waterproof, non-absorbent, non-slip and non-toxic material and should be sloped for drainage purpose.

Walls should be smooth and impervious, capable of being easily cleaned. The junctions between walls and floors and walls and ceilings should be coved and sealed.

Suspended ceilings are not recommended. If they are already in use, areas above suspended ceilings should also be accessible for cleaning and dust removal.

Floors, walls and ceilings should be regularly cleaned and condensation minimised to prevent mould growth.

6.3. Temperature

Where necessary, areas with specific temperature and humidity requirements for processing or storage should be fitted with suitable measuring and recording devices and means of controlling the critical conditions.

6.4. Ventilation

6.4.1 Provide suitable means of ventilation handle airborne dust, fumes, vapour or excess heat in a safe manner. .

6.5 Lighting

6.5.1 Lighting should be suitable and sufficient for the process and operations being carried out. General lighting levels should be 220 lux with 540 lux at points of inspection and where monitoring or sorting is taking place. A level of 110 lux is suitable for storage areas (recommendations of the Codex Alimentarius, 1983).

6.5.2 Light fixings as well as fire detection systems should be accessible for inspection maintenance and cleaning.

6.5.3 All lights in food rooms should be protected to prevent any contamination with glass in case of breakage.

6.6. Washing Facilities

Suitable and separate washing facilities should be provided for personnel and equipment and be clearly identified as such. Hot and cold water or a single controlled- temperature supply should be provided.

For wash-hand basin, non-hand-operated taps are recommended. Reusable or multiple use towels should not be used.

Receiving inspection

Before packing the beans, the processor shall inspect the product and satisfy themselves that they meet the required standard (refer to CAC XXX) or DNIS on dry beans....

8.0 Packaging and bagging

Various types of bags are used by the bean industry, including polypropylene and plastic, which are most used in shipments. Beans are usually sold loose in open sacks or in clear plastic bags so that the colour and quality can be easily seen.

8.Packaging

8.1.1 Dry beans shall be packed in suitable packages which shall be clean, sound, free from insect, fungal infestation and the packing material shall be of food grade quality.

8.1.3 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavour to the product.

8.1.4 Each package shall contain dry beans of the same type and of the same grade designation. (conduct receiving inspection – more than just same type)

8.1.5 If dry beans are presented in bags, the bags shall also be free of pests and contaminants.

8.1.6 Each package shall be securely closed and sealed.

8-2 Container and Packaging Requirement

8 2.1 General requirements

This part provides the container specifications and packaging materials requirements.

8.2.2 Containers and Materials

8.2.2.1 All containers and packaging shall be constructed to meet the requirements for safe contact with the packaged product.

8.2.2.2 The contractor shall obtain and maintain documentation from the container or packaging material manufacturer to verify that the containers and packaging materials used in this contract were in compliance with the Government's regulatory requirements for safe contact with food products as required in Weight and Measures regulations

8.2.4 Sewing of bag seams

8.2.4.1. All bag seams shall be sewn in a manner which prevents the product from leaking through the seams during handling, storage, and distribution.

8.2.4.2 The tensile strength of the sewn seams shall not be less than the tensile strength of the fabric in the body of the bag.

8.2.4.3. The top and bottom of the bag shall be heat cut or otherwise finished to prevent fraying or unravelling of the fabric during distribution.

8.2.5 Performance Test Procedures

8.2.5.1 All bags shall be capable of withstanding performance test for impact resistance (refer to standard test method)

8.2.5.2 The contractor may use any independent or private test laboratory that is capable of conducting the performance test for impact resistance

10. Equipment Requirement

9.1. General

10.1.1 All equipment, utensils and measuring devices that may have contact with dry beans, directly or indirectly, should be made of materials that do not transmit toxic substances, odour, taste or foreign materials to the product.

10.1.2 The materials should be non-absorbent and able to withstand the environment of their intended use and the action of cleaning compounds and sanitizing agents.

10.1.3 The use of different materials in such a way that contact corrosion can occur should be avoided.

10.1.4 Wood and other materials that cannot be adequately cleaned and sanitized should be avoided except when their use would clearly not be a source of contamination.

10.1.5 Glassware, plastic containers or utensils should not be used in such a way that there is any risk of contamination of the products. Plastic should replace glass wherever possible.

10.1.6 Equipment and utensils used for inedible materials or waste should be identified as such (e.g. by colour coding).

10.2. Design and Installation

10.2.1 Surfaces not in direct contact with produce and/or equipment, such as covers, lids, etc., which could cause contamination of equipment should be so constructed that they can be kept in a clean, sanitary condition

10.2.2 All processing and packaging equipment should be designed, installed and maintained so as to permit ready and thorough cleaning, e.g. it should be elevated from the floor and there should be enough space around it to allow for easy cleaning.

10.2.3 Dead spots, complex cross piping and complicated valve systems should be avoided.

10.2.4 Equipment in which dusty ingredients are processed or which generate dusty materials should be equipped with dust control devices that collect and remove particulate matter from the processing area.

11. General houskeeping

11.1 Waste, spillage and broken packages should be collected in separate, properly closed and clearly distinguishable containers and removed after each production run from the processing area and stored until disposal at allocated places.

11.2 Effective measures should be taken to prevent cross-contamination of production material by waste.

11.3 When waste is transported it should not come in contact with process materials or packaged product.

A pest control programme should also be applied for the management of temporary waste storage.

Labelling

13. Sanitary Operations

13.1 Pest control

13.1.1 Effective measures should be taken to exclude pests such as flying and crawling insects and rodents or birds from the processing area and to protect against contamination of beans and packaging materials.

13.1 .2 Pest control should be preventive and should include monitoring, e.g. of buildings, and include an effective system of documentation.

13.1.3 Preventive measures such as fumigation and good housekeeping are important to prevent the entry or attraction of pests.

13.1 .4 Additional measures such as the installation of hormone traps or electric fly killers, the use of insecticides or rodenticides (with precautions) and the organisation of a surveillance system will reinforce the preventive measures .

13.2 Cleaning and Sanitization

13.2 .1 Each factory should have a specific cleaning schedule with a formal cleaning plan for the specific zones, indicating what should be cleaned, the frequency of cleaning, the cleaning method and the responsibility for cleaning.

13.2.2 Wet cleaning of parts of equipment, moulds or utensils should be performed in separate rooms. Here, manual or automated techniques using water and detergents can be applied.

13.2 .3 After cleaning and sanitization, if necessary, rinsing and immediate drying should take place. It should only be applied to small areas at a time and complete and immediate drying should be ensured.

13.2.4 Dry cleaning of floor and equipment will include scraping, brushing and vacuum treatment, followed by sanitizing for example with a food-grade, alcohol-based disinfectant or a strong hypochlorite solution.

13.2.5 All potentially dangerous chemicals such as cleaning chemicals and fumigants should be stored securely and in such a manner as to prevent the contamination of raw materials, products or the process environment.

13.2.6 No material should be used in production areas when a risk of tainting is expected.

14 Personnel

The plant management should take all reasonable measures and precautions to minimise the risk of contamination by human activity.

4.1 Personal hygiene and sanitary facilities

14.1.1 . All plant personnel and visitors, where appropriate, should wear protective clothing and adhere to the personal hygiene provisions in this section

14.1.2- Hygienic facilities and toilets must be available to personnel so as to maintain an appropriate degree of hygiene and to avoid product contamination.



14.2 Health status

People known to be or suspected of being a carrier of a disease or illness likely to be transmitted through food should not be allowed access to areas of indoor premises where there is a likelihood of directly or indirectly contaminating beans

14.3 Outside Contractors

All persons entering the food rooms, including outside contractors, should comply with the same hygiene requirements as regular staff.

14. Cleanliness and personal behaviour

14.4.1 Protective clothing, hair covering, footwear and gloves, appropriate to the operation in which the employee is engaged, should be worn and maintained in a sanitary manner.

14.4.2 People entering food handling areas should not wear jewellery or other objects which could fall into or otherwise contaminate food. Jewellery which cannot be removed, such as wedding bands or medical alerts, should be covered.

14.4.2 The traffic pattern of employees must prevent cross-contamination of the product.

14.4.3 Access of non plant personnel and visitors should be controlled to prevent contamination.

14.5 Hygiene Training – Personal Cleanliness

14.5.1 A “code of hygienic practice for employees” provided by the company should be distributed to each new member during his/her induction period.

14.5.2 Training and instruction should also be provided for temporary employees and outside contractors (technical services, cleaning, etc).

14.5.3 Visitors should be instructed on basic hygiene rules prior to entry to processing areas.

•14.6 Hats or head covering of a suitable type should be worn by all personnel; any hair not completely covered by a hat or head covering should be contained within a fine mesh hair net.

•14.7 Protective garments including shoes worn in food rooms should be stored separately from outside clothing and should not be worn outside, e.g. travelling to and from work.

14.8 Jewellery and Other Objects

In production areas, in addition to wearing protective clothing, employees should present themselves in a clean and tidy manner and free from any possible hazard that could spread bacteria or foreign bodies into the product, i.e.:-

14.8 .1 no insecure jewellery to be worn;

14.8 .2 no coins or small personal effects to be carried loose in protective clothing pockets (no outside pockets);

14.8 Gloves

Gloves, if used in the handling of this products, should be maintained in a sound, clean and sanitary condition

14.9 Supervision

Responsibility for ensuring compliance by all personnel with requirements 9.1 to 9.8 should be specifically allocated to competent supervisory personnel.

BIBLIOGRAPHY

Dry beans – Production guideline – Department of Agriculture forestry & fisheries, Republic of South Africa, March, 2010.

USAID/East Africa ‘Crop conditioning handbook’ April, 2011.

USDA ‘Commodity requirements document - Dry edible beans, 2013.

USDA Commodity specification- Dry, Edible beans, Peas and Lentils, 2014.

MINUTES OF WORKSHOP TRAINING ON DRY BEANS

TITLE: PROCESSING AND PACKAGING OF DRY BEANS (CODE OF PRACTICE)

S/N	CLAUSE/SUB-CLAUSE	CHANGES MADE TO THE STANDARD	JUSTIFICATION FOR THE CHANGES
1.	Title	'Code of good practice for processing and packaging of brown beans ' was changed to 'Dry beans-processing and packaging (Code of Practice)'	<ul style="list-style-type: none"> - ISO specification for writing titles of standards. - Resolving conflicting issues in relation to other sub-titles of beans.
2.	Foreword	Change of format	ISO specification for writing foreword.
3.	Scope	Inclusions of What, Who and what not of the title	ISO and existing format.
4	Normative reference	Numbering was removed	ISO format
5	Definition	-	Real meaning of beans
	3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.11	Were expunged	Their definitions are not relevant to the context of the code.
	3.2, 3.3, 3.4	Replaced	Their definitions are relevant to the context of the code.
6.	General	All clauses must be a paragraph of its own and	Normal practice

		must be numbered.	
		Passive voice changed to active voice	Recommended practice.
		All headings were bold and not capitalized	<ul style="list-style-type: none"> - For consistency - clarity so as to differentiate between specific words acronymns.