



DRAFT EAST AFRICAN STANDARD

Brown rice — Specification

EAST AFRICAN COMMUNITY

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Contents		Page
Foreword		iv
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Quality requirements		4
4.1 General requirements		4
4.2 Specific requirements		4
5 Contaminants		5
5.1 Pesticide residues		5
5.2 Other contaminants		5
6 Hygiene		6
7 Packaging		6
8 Labelling		6
9 Sampling methods		7

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

EAS 765:2013 was prepared by Technical Committee EAS/TC 014, *Cereals, Pulses and related products*

Public Review DEAS 765

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Brown rice — Specification

1 Scope

This draft East African Standard specifies the requirements and methods of sampling and test for brown rice of the varieties grown from *Oryza spp.*, intended for human consumption or for processing to milled rice. This standard also covers the parboiled brown rice.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EAS 38, *Labelling of pre-packaged foods — Specification*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 900, *Cereals and Pulses – Sampling*

EAS 901, *Cereals and Pulses – Test method*

CODEX Stan 193, Codex general Standards for contaminants and toxins in food and feed

EAS 764, *Rough (Paddy) Rice — Specification*

3 Terms and definitions

For the purpose of this standard, the following terms and definitions shall apply.

3.1

brown rice

paddy rice (*Oryza spp*) from which only the outermost layer (the husk) of a grain of rice has been removed

3.2

broken kernels

pieces of rice that are less than three-quarters of a whole kernel and includes grains of rice in which part of the endosperm is exposed or rice without a germ. If the piece is more than three-quarters of a kernel, it is considered whole.

3.3

chalky kernels

head rice or broken kernel, except wax rice, whose whole surface has an opaque and floury appearance (except for glutinous rice).

3.4

chip

part of kernel which passes through a metal sieve with round perforations 1.4 mm in diameter

3.5

damaged /defective kernels

pest damaged, frost damaged, discoloured, stained, rotten and diseased, immature and shrivelled grains.

3.6 broken kernel

pieces of rice that are less than three-quarters of a whole kernel and includes grains of rice in which part of the endosperm is exposed or rice without a germ. If the piece is more than three-quarters of a kernel, it is considered whole.

3.7

degermed

kernel whose germ has been removed through the mechanical handling process or by insect attack

3.8

foreign matter

all organic and inorganic material

3.8.1 inorganic matter

stones, glass, pieces of soil and other mineral matter

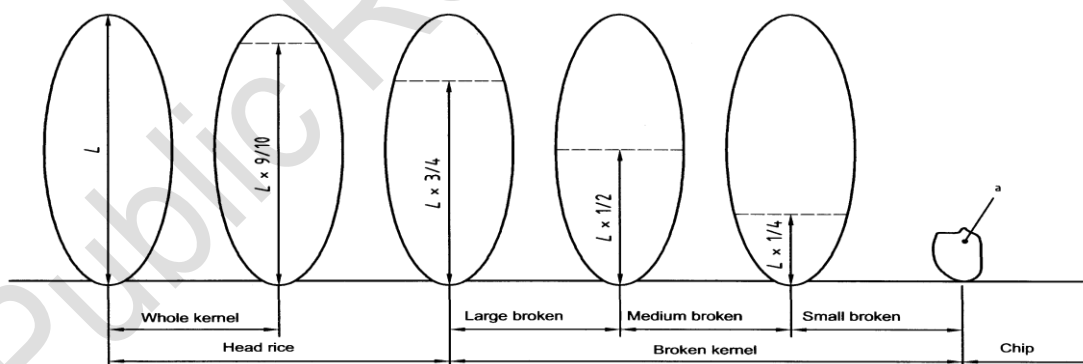
3.8.2 organic matter

any animal or plant matter (seed coats, straws, weeds) other than brown rice grain, damaged brown rice grain, other grains, inorganic extraneous matter and harmful/toxic seeds

3.9

head rice

whole kernel or part of the kernel with a length greater than or equal to 75 % of the average length of the testsample kernels (see Figure 1)



Key

a Not passing through a round perforation of 1.4 mm in diameter
L is the average length

Figure 1 — Size of kernels, broken kernels and chips

3.10

immature kernel

unripe and/or undeveloped whole or broken kernels

3.11

pest damaged

grains which show damage owing to attack by rodents, insects, mites or other pests. Grains may have a hole (commonly referred to as bored) or have a chewed appearance on any part of the grain

3.12

other contrasting varieties

whole or broken kernels of brown rice with distinct grain characteristics in size, shape and aroma from the designated variety

3.13

discoloured grains

borrow from relating standards 3.14

3.14

paddy

whole or broken unhulled kernels of rice

3.15

parboiled brown rice

brown rice processed from paddy rice that has been soaked in water and subjected to a heat treatment so that the starch is fully gelatinized followed by a drying process

3.16

partly gelatinized

head rice or kernel of parboiled rice which is not fully gelatinized and shows a distinct white opaque area

3.17

harmful/ noxious weeds

seeds such as Jimson weed — *datura* (*D. fastuosa* Linn and *D. stramonium* Linn.) corn cokle (*Agrostemma githago* L., *Machai Lallium remulenum* Linn.) Akra (*Vicia* species), *Argemone mexicana*, Khesari which, if present in quantities above a certain limit, can have a damaging or dangerous effect on health, sensory properties or technological performance

3.18

ungelatinized

whole or broken kernels of parboiled rice with distinct white or chalky areas due to incomplete gelatinization of the starch

3.19

variety

variety refers to the classification of brown rice as long grain brown rice, medium grain brown rice, short grain brown rice or mixed brown rice

3.20

food grade packaging material

packaging material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

3.21 glutinous rice/waxy rice

kernels of special varieties of rice which have a white and opaque appearance. The starch of the glutinous rice consists almost entirely of amylopectin. It has a tendency to stick together after cooking

3.22 rotten and/or diseased grains.

grain affected by mould growth or bacterial decomposition or other causes that may be noticed without having to cut the grains to examine it and renders it unsafe for human consumption

4 Quality requirements

4.1 General requirements

4.1.1 The rough rice from which the brown rice is obtained shall comply with EAS 764.

4.1.2 Brown rice shall be:

- a) free from foreign odours, moulds, live, pests, rodent droppings, toxic or noxious weed seeds
- b) the dried mature grains of edible *Oryza spp*;
- c) clean, wholesome, uniform in size, colour and shape;
- d) safe and suitable for human consumption;
- e) free from abnormal flavours, musty, sour or other undesirable odour and obnoxious smell;
- f) free from live pests

4.1.3 Brown rice shall be in form of well-filled seeds of uniform colour representative of the declared variety. The four classes in 4.1.3.1 – 4.1.3.4 shall be based on the percentage of whole kernels, and types of rice:

4.1.3.1 Long Grain Brown Rice shall consist of rough rice which contains more than 25.0 % of whole kernels of brown rice and in Grades 1 through 3 not more than 10.0 % of whole or broken kernels of medium or short grain rice.

4.1.3.2 Medium Grain Brown Rice shall consist of brown rice which contains more than 25.0 % of whole kernels of brown rice and in Grades 1 through 3 not more than 10.0 % of whole or broken kernels of long grainrice or whole kernels of short grain rice.

4.1.3.3 Short Grain Brown Rice shall consist of brown rice which contains more than 25.0 % of whole kernels of brown rice and in Grades 1 through 3 not more than 10.0 % of whole or broken kernels of long grainrice or whole kernels of medium grain rice.

4.1.3.4 Mixed Brown Rice shall consist of brown rice which contains more than 25.0 % of whole kernels of brown rice and more than 10.0 % of "other types".

4.2 Specific requirements

4.2.1 Brown rice for human consumption shall be categorized into three grades on the basis of the tolerable limits established in Table 1.

Table 1 — Specific requirements for brown rice

S/N	Characteristics	Maximum limits			Method of test
		Grade 1	Grade 2	Grade 3	
i)	Broken, % m/m	2	5	7	EAS 901
ii)	Damaged rice, % m/m	1.5	2	3.0	
iii)	Chalky, % m/m	2	4	6	
iv)	Immature grains, % m/m	2	6	12	
v)	Other contrasting varieties, % m/m	1	2	5	
vi)	Organic matters, %m/m	0.1	0.5	1	
vii)	Inorganic matters, % m/m	0.1	0.1	0.1	
viii)	Filth, % m/m	0.1			
ix)	Paddy grains, % m/m	1	2	2.5	
x)	Moisture contents, % m/m	14			

4.2.2 Glutinous brown rice for processing is a special variety of rice (*Oryza sativa* L. *glutinosa*) which contain more than 50 % opaque and floury kernels. Grade 1 shall contain not more than 1.0 % of nonchalky kernels, Grade 2 not more than 2.0 % of nonchalky kernels, Grade 3 not more than 4.0 % of nonchalky kernels and Grade 4 not more than 6.0 % of nonchalky kernels.

5 Contaminants

5.1 Pesticide residues

Brown rice shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

5.2 Heavy metals

Brown rice shall comply with those maximum limits for heavy metals as established in CXS 193.

5.3 Mycotxin

Brown rice shall comply with mycotoxin limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Mycotoxins limits for brown rice

S/N	Mycotoxin	Maximum limit µg/kg	Test method
i.	Total	10	EAS 901

	aflatoxins		
ii.	Aflatoxin B1	5	
iii.	Fumonisin	2 000	

6 Hygiene

6.1 Brown rice shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39.

6.2 When tested by appropriate standards of sampling and examination listed in Clause 2, the products shall not exceed the limits stipulated in Table 3;

Table 3 — Microbiological limits for brown rice

S/N	Type of micro-organism	Limits	Method of test
i)	Yeasts and moulds, cfu per g, max.	10 ⁴	ISO 21527-2
ii)	<i>Staphylococcus aureus</i> , cfu per 25 g, max	10 ³	ISO 6888-1
iii)	<i>Escherichia coli</i> , per g, max	10 ²	ISO 16649-2
iv)	<i>Salmonella</i> per 25 g	Absent	ISO 6579-1

7 Packaging

7.1 Brown rice shall be packaged in food grade packaging material which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the products.

7.2 Each package shall be securely closed and sealed.

8 Labelling and marking

8.1 In addition to the requirements in EAS 38, each package shall be legibly and indelibly labelled with the following:

- a) product name as "Brown Rice", 'Parboiled brown rice';
- b) classes
 - i) Long grain brown rice
 - ii) Medium grain brown rice
 - iii) Short grain brown rice

- iv) Mixed brown rice
- c) variety
- d) grade;
- e) name, address and physical location of the producer/ packer/importer;
- f) lot/batch/code number;
- g) net weight, in metric units
- h) the declaration “Food for Human Consumption”
- i) storage instruction as “Store in a cool dry place away from any contaminants”;
- j) crop year;
- k) packing date;
- l) instructions on disposal of used package;
- m) country of origin; and
- n) a declaration on whether the brown rice was genetically modified or not.
- o) best before date

8.2 Labelling of non-retail containers

When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the processor or packer as well as storage instructions, shall appear on the container.

However, lot identification, and the name and address of the processor or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

9.0 Sampling

Sampling shall be done in accordance with EAS 900.