

**Varieties blend milled rice — Specification**

PUBLIC REVIEW DRAFT

## **DKS 2086: 2023**

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National Public and Health Laboratories  
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# Varieties blend milled rice — Specification

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## Foreword

This Kenya Standard for varieties blend milled rice was prepared by the Cereals and Pulses Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

This third edition cancels and replaces the third edition (KS 2086:2020), which has been technically revised.

The need to revise this standard has arisen from the evident abuse of blending as a concept primarily aimed at enhancing cooking qualities of relatively inferior varieties by mixing with predetermined proportion(s) of superior and closely related varieties.

The revision of this standard is therefore geared towards preserving the integrity of blending as a concept whose time is here, regulating the practice and retaining it within its noble context. Customer satisfaction and complete transparency have become increasingly critical and as such, consumers need to be truthfully informed of the nature of product they are purchasing.

The standard is also designed to ensure enhanced safety of the consumers and guarantee the interests of the stakeholders in the rice sub-sector.

During the preparation of this standard, reference was made to the following documents:

MS 225:1974 Specification for milled rice.

USA: 1983 Standard for milled rice (Federal Grain Inspection Service USDA).

Pakistan Standard: Specification for rice 1993, PS 3342.

Codex Standard for rice 1995, "Codex Stan 198".

Forum for Agricultural Research for Africa in Accra, Ghana (FARA) — 2004.

University of Arkansas Rice Processing Program (UARPP) — 2004.

International Rice Institute Research (IRRI) in Phillipines (IRRI) — 2005.

West Africa Rice Development Association (WARDA) — 2005.

Acknowledgement is hereby made for the assistance derived from these sources.

## Varieties blend milled rice — Specification

### 1 Scope

This Kenya Standard specifies requirements, classification, grading and prescribes methods of tests for varieties blend milled rice (*Oryza Spp*) for human consumption.

### 2. Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements 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.

CODEX STAN 193, *General standard for contaminants and toxins in food and feed*

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

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

EAS 764, *Rough (paddy) rice — Specification*

EAS 765, *Brown rice — Specification*

EAS 900, *Cereals and pulses — Sampling*

EAS 901, *Cereals and pulses — Test methods*

### 3 Terms and Definitions

For the purposes of this standard, the following definitions shall apply:

#### 3.1

##### **varieties blend**

milled rice composed of two or more declared, pure rice varieties with similar grain characteristics, intentionally and uniformly mixed, and where each of the declared pure variety that constitute it, is not less than 25 % of the entire sample by weight

#### 3.2

##### **paddy**

whole or broken unhulled kernels of rice (*Oryza spp*)

#### 3.3

##### **hull/husk**

outer cover of the paddy grain

#### 3.4

##### **de-husking**

the process of removing husk from the paddy

#### 3.5

##### **polishing**

the process of intentionally removing bran layers from de-husked paddy

#### 3.6

##### **milling**

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the process of de-husking and/or polishing paddy

### **3.7**

#### **brown rice/cargo rice**

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

### **3.8**

#### **milled rice**

whole or broken kernels of rice (*Oryza* spp) from which the germ, embryo or at least the outer bran layer have been intentionally removed

### **3.9**

#### **polished rice**

brown rice from which most of the bran layer has been intentionally removed

### **3.10**

#### **kernel**

the edible portion of the paddy grain

### **3.11**

#### **whole kernel**

a processed rice grain which is not broken

### **3.12**

#### **glutinous rice**

a rice variety having amylose content below 2 % and characterized by a white and opaque appearance and a tendency of sticking together on cooking

### **3.13**

#### **non-glutinous rice**

a variety of rice having amylose content above 2 % characterized by a hard translucent appearance which breaks with a clean vitreous fracture, and does not have the tendency of sticking together after cooking

### **3.14**

#### **chalky kernels**

head rice or broken kernel, except wax rice, whose whole surface has an opaque and floury appearance

### **3.15**

#### **immature grain**

unripe and/or undeveloped whole or broken kernel

### **3.16**

#### **Red kernel**

head rice or broken kernel having a red bran covering more than 25 % of its surface

### **3.17**

#### **red streaked kernels**

head rice or broken kernel with red bran streaks of length greater than or equal to 50 % of that whole kernel, but where the surface covered by these red streaks is less than 25 % of the total surface

### **3.17**

#### **head rice**

whole kernel or part of the kernel with a length greater than or equal to 75 % of the average length of the test sample kernels

### **3.18**

#### **broken rice**

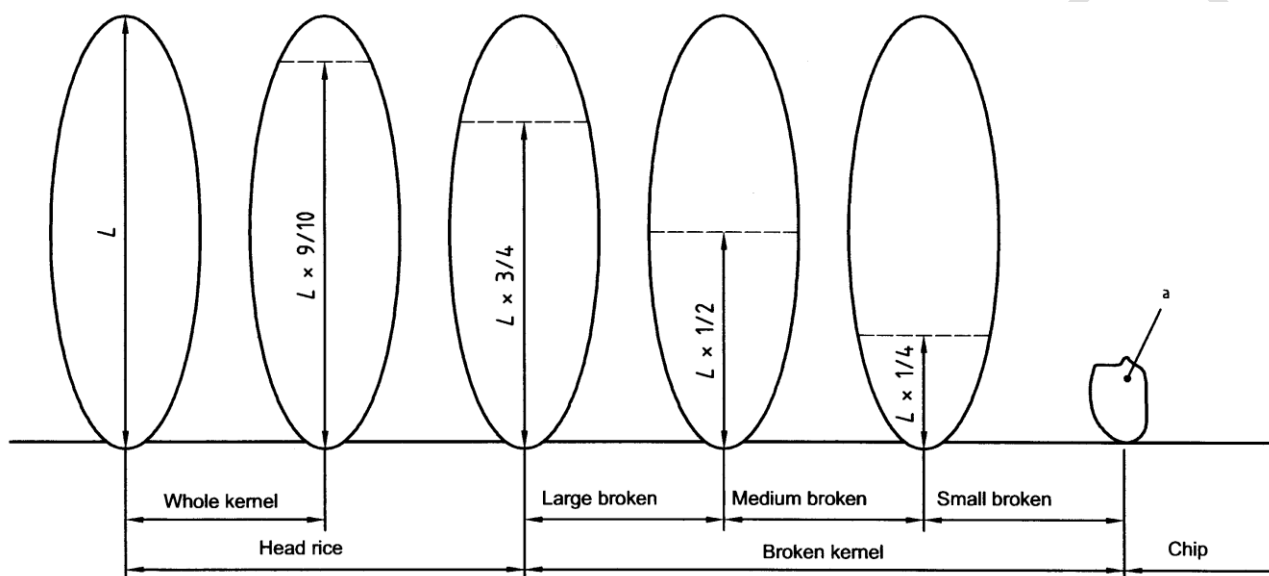
pieces of rice that are less than three-quarters of a whole kernel and includes grains of rice in which part of the endosperm is exposed or rice without a germ. If the piece is more than three-quarters of a kernel it is considered as head rice.

**3.19****large broken kernel**

part of kernel with a length less than three-quarters but greater than one half of the average length of the test sample kernels

**3.20****medium broken kernel**

part of kernel with a length less than or equal to one half but greater than one quarter of the average length of the test sample 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**

**3.21****finely broken rice/chips**

broken kernels of milled rice, of less than 25 % of the average length of the whole kernel

**3.22****damaged kernels**

kernels, whole or broken, which are distinctly damaged by insects, water, fungi or any other causative agents other than those caused by the milling process. They include stained, spotted and yellow grains

**3.23****parboiled rice**

paddy which has been steeped in water, steamed and dried before husks are removed and subsequently polished with a view to enhancing its nutrition value

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### 3.24 bran

by-product from milling of rice consisting of the outer (pericarp) layers of the kernel with part of the germ

### 3.25 fortified rice

milled rice to whose nutritional value has been enhanced.

### 3.26 immature

unripe and/or undeveloped whole or broken kernel which may be green in colour

### 3.27 foreign matter

all organic and inorganic material

### 3.28 inorganic matter

stones, glass, pieces of soil and other mineral matter

### 3.29 organic matter

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

### 3.30 filth

impurities of animal origin

### 3.31 foreign rice varieties

any whole or broken kernels of rice with either similar or different grain characteristics in size, shape and aroma from the declared varieties, and is either, with less than 25 % of the varietal weights; is not a declared variety in the blend; or both

### 3.32 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

## 4 Classification

Rice shall be classified as long grain, medium grain or short grain. The classification shall be done in accordance with one of the following specifications:

#### a) Option 1 (kernel length/width ratio):

- i) long grain rice: milled rice with a length/width ratio of 3.0 or more;
- ii) medium grain rice: milled rice with a length/width ratio of 2.0 – 2.9; and
- iii) short grain rice: milled rice with a length/width ratio of 1.9 or less;

#### b) Option 2 (kernel length):

- i) long grain rice with a kernel length of 6.6 mm or more;



ii) medium grain rice with a kernel length of 6.2 mm or more but less than 6.6 mm; and

iii) short grain rice with a kernel length of less than 6.2 mm;

**c) Option 3 (combination of the kernel length and the length/width ratio):**

i) long grain rice with either:

- kernel length of more than 6.0 mm and with a length/width ratio of more than 2 but less than 3; or
- kernel length of more than 6.0 mm and with a length/width ratio of 3 or more;

ii) medium grain rice with a kernel length of more than 5.2 mm but not more than 6.0 mm and a length/width ratio of less than 3; and

iii) short grain rice with a kernel length of 5.2 mm or less and a length/width ratio of less than 2.

**3.2** Milled rice shall be of the following types based on the shape of the kernel:

**3.2.1 Slender**

Milled rice having a kernel length over three times its breadth. Also known as long grain rice.

**3.2.2 Medium**

Milled rice having a kernel length/width ratio between 2:1 and 2:9.

**3.2.3 Bold**

Milled rice having a kernel length/width ratio between 1:1 and 2:0.

**3.2.4 Round**

Milled rice having a kernel length/width ratio of less than 1:1.

**3.3** Milled rice shall be of the following type based on the mass of the kernel:

**3.3.1 Extra heavy**

1 000 whole milled rice kernels with 14 % moisture content weighing over 25 g.

**3.3.2 Heavy**

1 000 whole milled kernels with 14 % moisture content weighing 20 g to 25 g.

**3.3.3 Light**

1 000 whole milled kernels with 14 % moisture content weighing under 20 g.

## **5 Quality Requirements**

### **5.1 General requirements**

5.1.1 Varieties blend milled rice shall be obtained only from such paddy or brown rice that complies with EAS 764 and EAS 765

5.1.2 Varieties blend shall be milled rice shall be constituted as described in 3.1 from which definition a maximum of four declared pure varieties apply.

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5.1.3 Blending proportions of declared pure varieties shall be declared. The minimum pure variety for blending shall be 25%. Any fraction falling below 25 % shall be treated as a foreign variety and must therefore not be declared:

5.1.4 All the constituents of varieties blends shall be of similar grain characteristics (Documented profiles for each constituent to support claim of grain similarities shall be readily accessible).

5.1.5 Each of the constituents of varieties blend shall independently or collectively be obtained from the milling of paddy or from milled rice of moisture content not exceeding 14 %.

5.1.6 Varieties blend shall not contain other undeclared foreign varieties beyond the limits stated in Table 1.

5.1.7 Varieties blend shall be of uniform colour and shall be of desirable texture and appearance.

5.1.8 Varieties blend shall be free from rancid taste.

5.1.9 Varieties blend shall be free from unpleasant or repulsive odours.

5.1.10 Varieties blend shall be free from foreign/extraneous matter such as but not limited to insects, rodents and their derivatives.

5.1.11 Varieties blend shall be clearly and conspicuously labelled as such.

5.1.12 Varieties blend milled rice shall be free from all contaminants and adulterants such as but not limited to insects, rodents and their derivatives.

5.1.13 Varieties blend shall be safe and suitable for human consumption

### 5.2 Specific requirements

Varieties blend shall comply with the specific requirements stipulated in Table 1.

**Table 1 — Specific requirements for varieties blend**

SL No.	Grading factor	Grade requirement/limits				Test method EAS 901
		Premium	Grade 1	Grade 2	Grade 3	
i)	Moisture content %, m/m, max.	14				Clause 5
iii)	Broken %, m/m, max.	5	15	25	35	Clause 4
iv)	Chalky/green immature grains %, m/m, max.	1	3	5	10	Clause 4
v)	Red or red streaked %, m/m, max.	2	2	6	12	Clause 4
vii)	Foreign and extraneous matter, %, m/m, max.	Nil	0.2	0.3	0.6	Clause4
viii)	Inorganic matter % m/m	0.1				Clause 4
ix)	Filth% m/m	0.1				

x)	Paddy (grains per 1 000), by count, (or % m/m), max.	3 (0.03)	30 (0.3)			Clause 4
xi)	Damaged grains %, m/m, max.	1	1.5	2	3	Clause4

## 6 Contaminants

### 6.1 Pesticide residues

Varieties blend Milled rice shall comply with pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

### 6.2 Other contaminants

**6.2.1** Varieties blend Milled rice shall comply with limits for heavy metals specified in CODEX STAN 193 established by Codex Alimentarius Commission.

**6.2.2** Varieties blend Milled rice shall comply with limits for mycotoxins given in Table 2 when tested in accordance with the test methods specified therein.

sno	mycotoxin	maximum	Test method EAS 901
1	Total aflatoxins (AFB <sub>1</sub> +AFB <sub>2</sub> +AFG <sub>1</sub> +AFG <sub>2</sub> ), µg/kg	10	Clause 9 or 10
2	Aflatoxin B1, µg/kg	5	

## 7 Hygiene

**7.1** Variety blend rice shall be produced, prepared and handled in accordance with EAS 39.

**7.2** Variety blend rice shall comply with the limits given in Table 3 when tested in accordance with the test methodsspecified therein.

**Table 3 — Micro-organisms limits for varieties blend rice**

S/N	Micro-organism	Limit	Test method
i.	<i>Escherichia coli</i> , in cfu/g, max.	10 <sup>2</sup>	ISO 16649-2
ii.	<i>Salmonella</i> spp. per 25 g	Absent	ISO 6579-1
iii.	Yeast and moulds, per g, max.	10 <sup>4</sup>	ISO 21527-2
iv.	<i>Staphylococcus aureus</i> cfu/g, max.	10 <sup>3</sup>	ISO 6888-1

## 8 Weights and measures

Varieties blend milled rice shall be packaged in accordance with the weights and measures regulations of the destination country.

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NOTE : Kenya is a signatory to the International Labour Organizations (ILO) for maximum package weight of 50 kg where human loading and offloading is involved.

### 9 Packaging

9.1 Varieties blend milled rice shall be packed in food grade packaging materials which will safeguard the hygienic, nutritional, and organoleptic qualities of the products

9.2 Each package shall be securely closed and sealed.

### 10 Labelling

10.1 Labelling of retail containers

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

- a) product name as “ Varieties blend milled rice”;
- b) grade: premium, grade 1,2,3
- b) classes:
  - i) long grain milled rice;
  - ii) medium grain milled rice; and
  - iii) short grain milled rice;
- c) name, address and physical location of the manufacturer/packer/importer;
- d) lot/batch/code number;
- e) net weight, in kilograms;
- f) the declaration “Food for human consumption”;
- g) storage instruction as “Store in a cool dry place away from any contaminants”;
- h) crop year;
- i) expiry date;
- j) instructions on disposal of used package;
- k) country of origin; and
- l) a declaration on whether the milled rice was genetically modified or not.

8.2 The varieties blend information shall be declared as in Table 4.

**Table 4 — Information on varieties blend**

Blended varieties	Variety 1	Variety 2	Variety 3	Variety 4
Variety name (official)				
Grain type (long/medium/short)				
Country of origin				
Crop year				
Blending ratio in %				

8.3 A declaration of varieties blend as pure variety is prohibited and shall be an offence punishable by law under the Standards Act, Cap. 496 of the Laws of Kenya.

8.4 Varieties blends shall not be declared as being aromatic.

8.5 It shall be an offence to introduce any artificial aroma to the varieties blend milled rice.

### 9.2 Labelling of non-retail containers

Information in 9.1 shall be given either on the container 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.

**10 Sampling**

Sampling shall be done in accordance with EAS 900.

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