

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

AGRICULTURAL PRODUCT STANDARDS ACT, 1990  
(ACT No. 119 OF 1990)

REGULATIONS RELATING TO THE GRADING, PACKING AND MARKING OF RICE  
KERNELS INTENDED FOR SALE IN THE REPUBLIC OF SOUTH AFRICA

The Minister of Agriculture, Forestry and Fisheries, acting under section 15 of the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990),

- (a) made the regulations set out in the Schedule;
- (b) repealed the regulations published by Government Notices No. R. 866 of 07 November 2014; and
- (c) determined that the said regulations shall come into operation on the date of publication.

SCHEDULE

**Definitions**

1. In these regulations any word or expression to which a meaning has been assigned in the Act shall have that meaning and, unless the context otherwise indicates --

"**address**" means a physical address in the Republic of South Africa and includes the street or road number or name, and the name of the town, village or suburb and, in the case of a farm, the name or number of the farm and of the magisterial district in which it is situated;

"**aromatic or fragrant rice**" means aromatic or fragrance speciality varieties of rice kernels of (*Oryza Sativa L. scented*) that have a distinctive and characteristic aroma; e.g. basmati and jasmine rice; Texmati, Tulaipanji, Wehani, and wild pecan rice;

"**brown rice**" means rice kernel from which the husk only has been removed;

"**black kernels**" means parboiled rice kernels that are black wholly including kernels that are dark brown;

"**bulk container**" means a suitable packing unit or container relating to bulk storage and/or transport of rice kernels;

"**chalky kernels**" means whole or broken kernels except for glutinous rice, of which at least three-quarter of the surface has an opaque and floury appearance;

"**chip**" means a fragment of rice kernel, which passes through a metal sieve with round perforation 1.4 mmm in diameter;

"**composite or mixed rice**" means variety of rice which has been blended with whole and/or processed non-rice products, grains, vegetables, seeds, pulses or legumes: provided that at least 75% to 80% of the contents is rice;

"**container**" means a bag or a bulk container or other suitable packing unit or container;

"**consignment**" means a quantity of rice kernels of the same kind or class which is delivered at any one time under cover of the same consignment note, delivery note or receipt note, or delivered by the same vehicle or bulk container, or which is loaded from a bin of a grain

elevator from a ship's hold or railway truck, or if such a quantity is subdivided into different classes, each quantity of each of different classes;

**"damaged kernels"** means whole or broken kernels of rice which are distinctly discoloured or damaged by moisture, insects, diseases, and or any other means but excluding heat damaged or yellow kernels (including a parboiled rice in a non-parboiled rice and smutty kernels);

**"defective rice kernels"** means damaged kernels, yellow kernels, immature kernels, chalky kernels, red kernels, red-streaked kernels, and pecks as listed in column 1 of table 3 and 4;

**"foreign matter"** means all matter other than rice, including rice husks and rice bran animal filth, glass, metal, stones and coal that does not form part of rice, of which Coal, dung, glass and metal shall not be present in the consignment concerned;

**"germ"** means the small white portion which lies on the ventral side of the rice grain from where the seed germinates;

**"glutinous or waxy rice"** means kernels of special varieties of rice (*Oryza Sativa L. glutinosa*) which have a white and opaque appearance. The starch of glutinous rice consists almost entirely of amylopectin. It has a tendency to stick together after cooking;

**"head rice"** means whole or part of the milled kernel with a length greater or equal to 75% of the average length;

**"hull"** means the outermost cover of the rice kernel, also known as "husk";

**"husked rice"** means brown rice or cargo rice from which the husk only has been removed;

**"immature kernels"** means the unripe and/or underdeveloped whole or broken kernels, including the malformed kernels;

**"insect/ pest"** means any live grain insect that is injurious to stored grain irrespective of the stage of development of that insect;

**"large broken rice"** means a rice kernel of which the length is less than three quarters and greater than one half of the average length of the whole kernel as depicted in figure 2 of the annexure;

**"lot"** means a stated quantity of rice kernels, presumed to be of uniform characteristics, taken from the consignment;

**"main panel"** means that part of the label or container bearing the trade mark, trade name or brand name in greatest prominence and any other part of the label or container bearing the trade mark, trade name or brand name in equal prominence;

**"micrometer"** means the measuring device, that is capable of reading to the nearest 0.01mm and which does not deform the kernels;

**"milled rice"** means de-husked rice kernels from which all or part of the bran and germ have been removed by milling ["white rice" is used as a synonym] and which may be either parboiled or not;

**"milling degree"** means the extent of which the bran layers and the germ have been removed;

as follows:

- (a) **Under milled rice** – means rice kernel from which the hull, a part of the germ and all or part of the outer bran layers, but not the inner bran layers have been removed.
- (b) **Well-milled rice** – means rice kernel from which the hull, the germ, the outer bran layers and the greater part of the inner bran layers have been removed.
- (c) **Extra-well-milled rice** – means rice kernel from which the hull, the germ and the bran layers have been completely removed.

"**moisture content**" means the weight of water contained in a rice kernel/s expressed as percentage of the weight of the rice kernel/s;

"**packer**" means a person or company packing rice for sale, a person/company on whose behalf rice are packed for sale and a person/company importing rice for sale;

"**paddy rice**" means rice kernels which has retained its husk after threshing and may be parboiled or not;

"**parboiled rice**" means husked or milled rice processed from paddy or husked 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;

"**partly black rice**" means parboiled rice kernels that have obviously black or dark brown discolouration covering an area greater than 25% of the kernels 'surface';

"**peck kernels**" means parboiled rice kernels that have obviously black or dark brown discolouration covering an area not exceeding than 25% of the kernels 'surface';

"**poisonous seeds**" means the seeds or bits of seeds of plant species that may present a hazard to human or animal health when consumed, including seeds of *Argemone mexicana* L., *Convolvulus spp.*, *Crotalaria spp.*, *Canavalia ensiformis*, *Datura spp.*, *Ipomoea purpurea*, *Lolium temulentum*, *Ricinus communis* or *Xanthium spp.*;

"**premium grade**" means the rice quality which meets the highest grade requirements as set out in the Annexure;

"**rice**" means whole or broken grains or kernels obtained from the species *Oryza Sativa* L and *Oryza Glaberrima*.;

"**red kernel**" means a whole or broken kernel, having a red coloured pericarp (bran layer) covering more than one-quarter of the surface, but excluding yellow kernels;

"**red streaked kernel**" means whole or broken kernel, with red streaks, the length of which are greater than or equal to one-half of that of the whole kernel, but where the surface covered by these red streaks is less than-quarter of the total surface;

"**retail quantity**" means a quantity of 10 kg or less of rice, irrespective whether sold in containers or in loose quantities;

"**sieve**" means a round hole metal sieve of 1.4 mm diameter and the round perforated holes of 1.75 mm diameter;

"**small broken rice**" means the fragment of the rice kernel, which can pass through a sieve

with round perforations of 1.75 mm in diameter, with the length less than one quarter of the average length of the whole kernel as depicted in figure 2 of the annexure;

**"speciality rice"** means rice varieties that differ from typical rice varieties in their quality and they characterised by certain special quality features like aroma, texture, colour, kernel length, flavour, chemical compositional, amylose content and ecological regions;

**"standard grade"** means rice which is of a lower quality than premium grade as set out in the Annexure;

**"the Act"** means the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990);

**"under milled rice"** means milled rice kernels that have the milling degree below that specified for each grade of rice;

**"value grade"** means rice which is a lower quality than standard grade as set out in the Annexure;

**"whole kernel"** husked or milled rice grain without any broken part as depicted in figure 2 of the annexure; and

**"yellow rice or heat damaged rice"** means a whole or broken kernels that have changed their normal colour as a result of heating, and includes parboiled rice kernels found in a batch of non-parboiled rice kernels.

### ***Scope of the Regulations***

2. These regulations are the minimum standards applicable to grain or kernels of brown rice and white rice, parboiled or non-parboiled rice, and speciality rice intended for sale in the Republic of South Africa. It does not apply to other products derived from rice or to glutinous rice and ready-to-eat products.

### ***Restriction on the sale of rice***

3. (1) No person shall sell a consignment of rice in the Republic of South Africa --
- (a) unless the rice concerned comply with the general standards referred to in regulation 4;
  - (b) unless the rice concerned is classified according to classes set out in regulation 5;
  - (c) unless the rice concerned is graded and complies with the quality standards for such grade set out in regulations 6 and 7;
  - (d) unless the rice concerned is packed in containers and in the manner prescribed in regulations 8 and 9 ;
  - (e) unless the rice concerned is marked with the particulars and in the manner prescribed in regulations 10 , and 11 ;
  - (f) if the rice concerned contain a substance that has thus been prescribed as a substance that it should not contain;

- (g) if the rice concerned is packed in a container or in such a manner that has thus been prescribed as a container or a manner in which it shall not be packed; and
- (h) if the rice concerned is marked with particulars or in such a manner that has thus been prescribed as particulars or manner in which it shall not be marked.

(2) The Executive Officer may grant written exemption, entirely or partially, to any person on such conditions as he or she may deem necessary, from the provisions of sub regulation (1).

## **PART I**

### **QUALITY STANDARDS**

#### ***General requirements***

4. Notwithstanding the provisions of regulations 5 and 6, all consignments of rice shall --
- (a) be free from abnormal flavours and undesirable odours;
  - (b) be free from poisonous seeds: Provided that a consignment of rice in bulk quantities may contain poisonous seeds to the extent permitted in terms of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972);
  - (c) be clean, uniform in size and colour;
  - (d) comply with the maximum residue levels prescribed for Agricultural Remedies and Heavy Metal in terms of Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972);
  - (e) have moisture content not exceeding 14 percent;
  - (f) be free from insects and mites; and
  - (g) be free from animal filth, glass, metal, coal, or any other form of foreign object contamination.

#### ***Classes of rice***

5. Rice shall be classified according to the following characteristics:
- (a) Kernel length/width ratio and/or combination of both;
  - (b) Colour of the rice;
  - (c) Heat where applicable; and
  - (d) Speciality rice where applicable.

### **TABLE 1. CLASSIFICATION OF KERNEL LENGTH AND WIDTH**

- (i) The classification with regard to kernel length shall be in accordance with one of the following specification either A, B or C as depicted in the table below and Figure 1:

A	B		C
Kernel Length	Kernel Length/Width Ratio		Combination of kernel length and the length/width Ratio
	Brown rice	White rice	
<b>Short grain rice <math>\leq 6.2</math> mm</b> Rice with 70% or more of whole or broken rice having a kernel length of less than 6.2 mm and not more than 10% of medium and long grain rice.	$\leq 2.0$	$\leq 1.9$	$\leq 5.2$ mm and with the ratio of $\leq 2$
<b>Medium grain rice 6.2 mm – 6.6 mm</b> Rice with 70% or more of whole or broken rice having a kernel length of 6.2 mm but less than 6.6 mm; and not more than 10% of long and short grain rice.	2.1 – 3.0	2.0 – 2.9	$\geq 5.2$ mm but not More than 6.0 mm and with length/width ratio of $\leq 3$
<b>Long grain rice 6.6 mm – 7.0 mm</b> Rice with 70 % or more of whole or broken rice grains having a kernel length of 6.6 mm or more and not more than 10% of medium and short grain rice.	$>3.1 - 3.4$	$>3.0 - 3.3$	More than 6.0 mm and length/width ratio of more than 2 but less than 3
<b>Extra-Long grain rice <math>\geq 7</math>mm</b> rice with 70 % or more of whole or broken rice grains having a kernel length of 7.0 mm or more and not more than 10% of long, medium and short grain rice.	$>3.5$	$>3.4$	

- (ii) The classification with regard to colour shall be in either brown or white.
- (iii) The classification with regard to heat treatment shall be either parboiled or non-parboiled.
- (iv) The classification with regard to speciality rice shall include but not limited to:
- (a) Aromatic/ Fragrant rice;
  - (b) Black rice;
  - (c) Composite rice;
  - (d) Glutinous rice;
  - (e) Sushi rice;
  - (f) Wild rice; and
  - (g) Risotto rice.

### ***Grades of rice***

6. For the purpose of application of these regulations rice shall be graded as --
- (a) Premium grade;
  - (b) Standard grade; and
  - (c) Value grade.

### **7. *Standards for grades of rice***

Subject to the provisions of regulation 3, all rice shall not have a deviation specified in column 1 of Table 3 and 4 to a larger extent than the applicable maximum or minimum specified in column 2,3,4,5,6,7 of Table 3 and 4 opposite thereof for the class concerned.

## **PART II**

### **CONTAINERS, PACKING AND MARKING REQUIREMENTS**

#### ***Requirements for containers***

8. The containers in which rice are packed shall –
- (a) be manufactured from a material that –
    - (i) will protect the contents thereof against contamination; and
    - (ii) will not impart any undesirable flavour or odour to the contents thereof.
  - (b) be so strong that they will not tear or break during normal storage, handling and transport practices;
  - (c) be whole, with the exception of grain probe marks: Provided that grain probe marks will not be permissible in the case of rice in retail quantities, notwithstanding the presence of micro-perforations which allow for air release in retail form-fill and seal packaging;
  - (d) be clean;
  - (e) be closed or sealed properly in a manner permitted by the nature thereof; and
  - (f) in the case of rice in retail quantities, be previously unused for any purpose.

### ***Packing requirements***

9. Each package shall contain rice of the same type and the class or grade designation, except in the case of the class with mixed or composite rice.

### ***Marking requirements***

10. (1) Each container in which rice is packed shall be marked in clearly legible letters with the following particulars at least in English --

#### ***Name of the product***

(a) The name of the product shall be rice.

#### ***Additions to the name of the product***

(b) The following shall be included as part of the name of the product or shall be indicated in close proximity thereto:

(i) The grain length as set out in regulation;

(ii) The colour of rice;

(iii) The heat treatment (parboiling) as set out in Regulation 5(iii);

(iv) The usage; (optional) and

(v) The name of the variety and/or origin and/or usage of the rice may be included as part of the name of the product or may be indicated in close proximity thereto.

#### ***Grade declaration***

(c) The appropriate grade declaration.

#### ***Name and address***

(d) The name or trade mark and address of the manufacturer, packer, importer, seller or person or entity on whose behalf the product has been packed.

Be preceded by the expression "**Packed by/for**" or, in the case of rice of imported rice into the Republic in the containers in which they are to be sold in the retail trade, be preceded by the expression "**Imported by**".



### ***Country of origin***

- (e) The country of origin which shall be declared as follows:
- (i) "Product of (name of country)" if all the main ingredients, processing and labour used to make the product is from one specific country;
  - (ii) "Produced in (name of country)", "Processed in (name of country)", "Manufactured in (name of country)", "Made in (name of country)", or wording having a similar meaning, when the product is processed in a second country which changes its nature; or
  - (iii) In the case where single ingredient agricultural commodities are imported in bulk and where owing to climatic, seasonal or other contingencies more than one country may be the source of the single ingredient agricultural commodity, the wording 'Product of **(name(s) of country(ies))**' separated by the **expression 'and/or'**, shall be declared on the label of the final pre-packed foodstuff: Provided that the final end product remains a single ingredient agricultural commodity: Provided further that the words "Packed in (name of country)" may be used in addition to the requirements of sub-paragraph (i) or (ii) above.

### ***Net weight***

- (f) The total weight of the rice packed therein.

### ***Lot identification for bulk quantities***

- (g) Lot identification is applicable to Marking of containers in which rice is packed in bulk quantities.

### ***Prohibited particulars***

11. (1) No word, mark, illustration, depiction or any other method of expression that constitutes a misrepresentation, directly or by implication creates or may create a misleading impression regarding the quality, nature or class of rice shall appear on a container in which rice are packed, or on a label attached to such container.

## PART III

### METHODS OF INSPECTION

#### **General Sampling**

12. (1) A sample of a consignment of rice shall for the purpose of the application of these regulations be obtained as follows:

- (a) In the case of rice in retail quantities packed in containers --
- (i) randomly taking from the number of containers concerned, at least the applicable number of containers mentioned in column 2 of sampling Plan Table 2 below;

**TABLE 2. SAMPLING PLAN**

<b>Number of containers comprising quantity of Rice</b>	<b>Minimum number of containers to be selected at random</b>
<b>Column 1</b>	<b>Column 2</b>
Less than 10	2
11 to 50	4
More than 50	6

- (ii) sampling each such container by hand in the manner set out in regulation 13: Provided that if the contents per container is 1kg or less the total contents of all the chosen containers will be taken as sample; and
- (iii) in the case of rice in retail quantities that are kept for sale in loose quantities, obtain a sample by hand in the manner contemplated in regulation 12.
- (b) In the case of rice delivered in bags-
- (i) sampling each bag in that consignment with a grain probe as contemplated in regulation 14 or by hand as contemplated in regulation 13 if it consists of 100 bags or less; or
- (ii) by otherwise sampling at least 10 percent of the bags chosen at random from that consignment at random with a grain probe as contemplated in regulation 14 or by hand as contemplated in regulation 13: Provided that at least 15 bags in a consignment shall be sampled and where a consignment consists of less than 15 bags, all the bags in that consignment shall be sampled.

(c) in case of rice delivered in bulk and subject to regulation 12, be obtained by sampling that consignment throughout the whole depth of the layer, in at least six different places, chosen at random in that bulk quantity, with a bulk sampling apparatus.

(2) The collective sample obtained in subregulation (1)(b) or (c) shall --

(a) have a total mass of at least 5kg; and

(b) be thoroughly mixed by means of dividing before further examination.

(3) If it is suspected that the sample referred to in subregulation 1(b) is not representative of that consignment, an additional 2 percent of the remaining bags chosen from that consignment at random, shall be emptied into a suitable bulk container and sampled in the manner contemplated in subregulation (1)(c).

(4) A sample taken in terms of this regulation is considered to be representative of the consignment from which it was obtained.

### ***Sampling by hand***

13. The sampling of a consignment by hand shall be done as follows --

(a) Open the containers in the consignment that have to be sampled.

(b) Insert the open hand wearing a clean new latex glove into such container or the loose quantity concerned, close the hand into a fist and thereafter withdraw it evenly.

(c) Place the material enclaspd by hand in a suitable collecting tray.

(d) Repeat the procedure described in paragraph (b), alternatively, at various depths in the containers or loose quantities concern and place the material thus removed in the collecting tray referred to in paragraph (c).

(e) Take more or less equal quantities or material from each container sampled.

(f) Thoroughly mix the material thus obtained and divides it by means of a sample divider to obtain a sample of at least 1kg of material.

### ***Sampling by means of a bag probe***

14. (1) The sampling of a consignment with a bag probe shall be done as follows --
- (a) Insert the tapered end of the bag probe at an angle of approximately 30 degrees with the horizontal line and with the aperture thereof pointing downwards, into each bag chosen from that consignment until the end of the probe is approximately in the centre of such bag.
  - (b) Turn the bag probe through approximately 180 degrees on the longitudinal axis thereof so that the aperture thereof is at the top.
  - (c) Extract the bag probe with a slight shaking movement and diminishing speed from the bag concerned to ensure that a relatively even and increasing flow of rice is maintained through the aperture thereof closer to the side of the bag.
  - (d) Place the material contained in the bag probe in a suitable container.
  - (e) Repeat the procedure described in subparagraphs (a), (b) and (c) alternatively at various depths or alternate bags and place the material thus removed in the container referred to in subparagraph (d).
  - (f) Take approximately equal quantities of material from each bag that is sampled.
- (2) A bag probe referred to in sub regulation (1) shall --
- (a) be long enough so that the end thereof will reach the centre of a bag being sampled; and
  - (b) consist of a cylindrical tube with a tapered end and an aperture close to the end.

***Working sample***

15. A working sample shall be obtained by dividing the representative sample of the consignment according to the ICC/1 method.

## DETERMINATION OF OTHER SUBSTANCES AND GRAIN COMPOSITION

### ***Determination of undesirable odours and harmful substances***

16. A sample of a consignment of rice shall be sensorial assessed or chemically analysed in order to determine --
- (a) whether it has undesirable flavours or odour: Provided that a working sample of unscreened rice that is ground in a grain mill to a fine meal may be used for the determination concerned; and
  - (b) whether it contains a substance that renders the rice unfit for human consumption or for processing into utilisation as food or feed.

### ***Determination of poisonous seeds, insects and mites***

17. A consignment of rice shall be sensorial assessed and a sample of that consignment shall be sensorial assessed and sorted by hand in order to determine whether the sample contains poisonous seeds and insects.

### ***Determination of foreign matter, stones and sand***

20. The percentage foreign matter, stones and sand in a consignment of rice shall be determined as follows --
- (a) Obtain a working sample of 200g of rice from the collective sample of the consignment.
  - (b) Remove all the foreign matter, other classes, all the stones and sand separately from the working sample and determine the respective masses thereof.
  - (c) Express the masses thus determined, as percentages of 200g.
  - (d) Such percentages shall respectively represent the percentage of foreign matter, other classes, the percentage of stones and sand in the consignment concerned.

### ***Determination of the kernel length/width***

18. The kernel length and width of rice in a consignment shall be determined as follows --

#### **A. Kernel Length**

The length of the sample of rice in a consignment shall be determined as follows --

- (a) Using a divider separate two sets of 100 kernels from the sample without any broken part, by random selection.
- (b) Measure the length of the kernels using a micrometer Caliper and calculate the arithmetic mean of both sets of kernels.

- (c) Calculate the average length of the two sets of kernels: Provided that if the standard deviation is calculated as being higher than 2, return all the kernels to the tray and repeat procedure from paragraph (a).
- (d) Such an average length determined shall be deemed the average length of the rice in a consignment.

**B. Kernel Width**

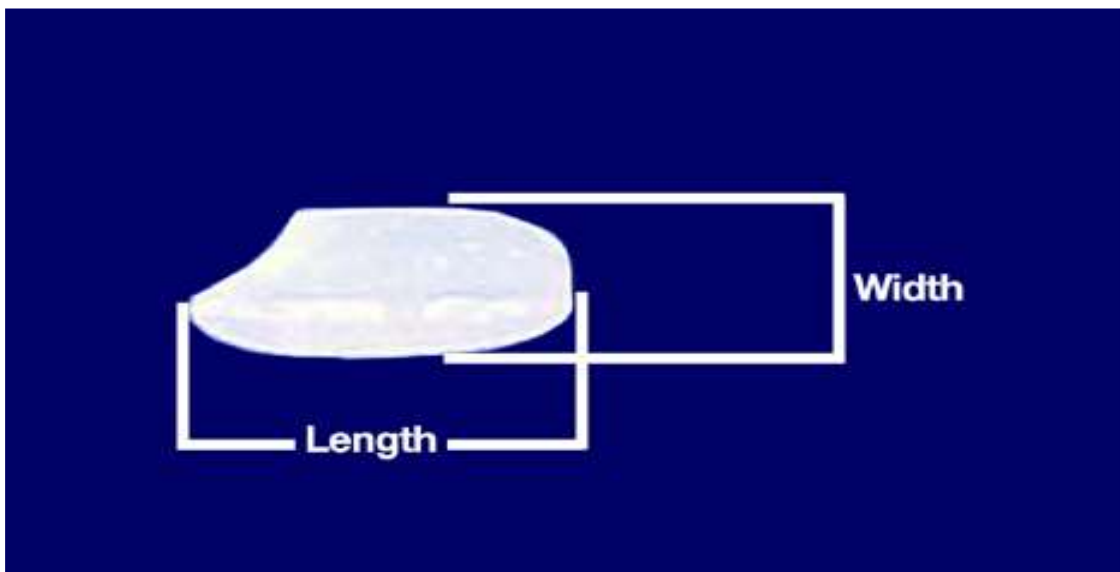
- (a) Separate two sets of 100 kernels from the sample without any broken part, by random selection.
- (b) Measure the width of the kernels using a micrometer Caliper and calculate the arithmetic mean of both sets of kernels.
- (c) Calculate the average width of the two sets of kernels: Provided that if the standard deviation is calculated as being higher than 2, return all the kernels to the tray and repeat procedure from paragraph (a).
- (d) Such an average width determined shall be deemed the average width of the rice in a consignment.

**C. Kernel length/width Ratio**

The average length and width previously calculated

$$\text{Length/width ratio} = \frac{\text{average length of the kernel}}{\text{average width of the kernel}}$$

**FIGURE 1. MEASURING RICE KERNELS**



### ***Determination of head rice and whole kernel***

19. The percentage head rice and whole rice kernel in a consignment shall be determined as follows --
- (a) Obtain a working sample of at least 150 g rice from the collective sample.
  - (b) Remove all the head rice from the working sample and determine the weight thereof.
  - (c) Express the weight thus determined as a percentage of the mass of the working sample.
  - (d) Such percentage shall represent the head rice in the consignment concerned.

### ***Determination of large broken and small broken rice kernels***

20. The percentage large broken and small broken rice kernels in a consignment shall be determined as follows --
- (a) Obtain a working sample of at least 150 g rice from the collective sample.
  - (b) Remove all the large broken and small broken rice kernels separately from the working sample and determine the weight thereof.
  - (c) Express the weight thus determined as a percentage of the mass of the working sample.
  - (d) Such percentage shall represent the head rice in the consignment concerned.

## **DETERMINATION OF DEFECTIVE KERNELS**

### ***Determination of percentage heat damaged kernels, damaged kernels, immature, chalky kernels, red kernels, red-streaked kernels and waxy rice in all rice types***

21. The percentage of the heat damaged kernels, the damaged kernels, the immature or malformed kernels, the chalky kernels, waxy kernels, the red kernels and the red-streaked kernels in milled (white) rice shall be determined as follows --
- (a) Obtain a working sample of at least 200g rice from the collective sample.
  - (b) Remove all heat damaged kernels, damaged kernels, immature, the chalky kernels, waxy kernels, red kernels and red-streaked kernels separately from the working sample.
  - (c) Separately weigh each of the identified defective kernels from each other Express the respective weight thus determined as a percentage of the mass of the working sample.

- (e) Such percentage shall represent the percentage damaged kernels, immature kernels, heat damaged kernels, chalky kernels, waxy kernels, red kernels and red-streaked kernels in the consignment concerned.

***Determination of percentage of pecks in milled (white) parboiled rice.***

- 22.** The percentage of pecks in milled (white) parboiled rice shall be determined as follows --
- (a) Obtain a working sample of at least 150 g rice from the collective sample.
  - (b) Remove all the pecks from the working sample and determine the weight of the pecks.
  - (c) Express the weight thus determined as a percentage of the mass of the working sample.
  - (d) Such percentage shall represent the pecks in the consignment concerned.

***Determination of percentage of waxy rice in parboiled rice.***

- 23.** The percentage waxy rice in parboiled rice shall be determined as follows --
- (a) Obtain a working sample of at least 100g milled parboiled rice and put it into a glass beaker.
  - (b) Add approximately 80ml of iodine working solution to soak the kernels and stir until all the kernels are submerged under the solution. Let the kernels soak in the solution for 30 seconds.
  - (c) Pour the rice and solution into a wire basket and shake the basket slightly in order to drain out the solution. Then place the basket on a piece of tissue paper to absorb the excess liquid.
  - (d) Pour the stained kernels into a bowl. Separate the reddish brown kernels of waxy rice from the dark blue kernels of non-waxy kernels.
  - (e) Weigh the waxy rice portion and the non-waxy rice portion separately.
  - (d) Express the mass thus determined as a percentage of the mass of the working sample.
  - (e) Such percentage shall represent the percentage waxy rice in the consignment concerned.



## PART V

### MOISTURE CONTENT

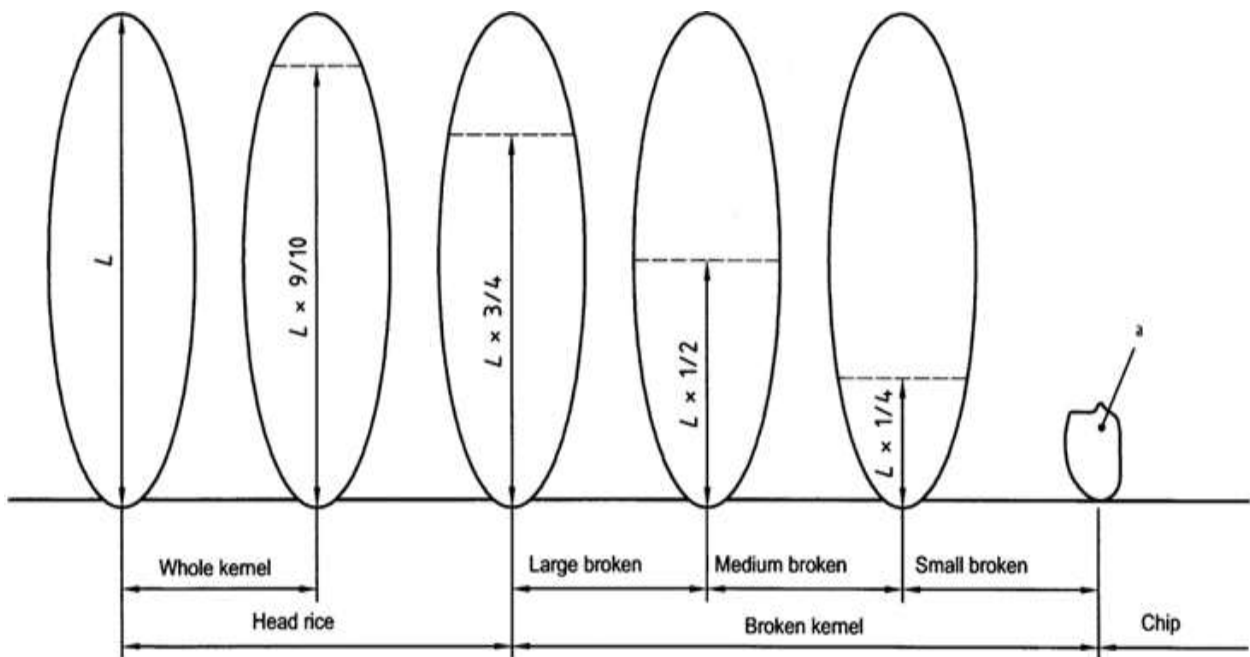
#### *Determination of moisture content*

24. The moisture content of a consignment of rice may be determined according to any suitable method: Provided that the results thus obtained are in accordance ( $\pm 0,3$  per cent) with the results obtained by means of the 72 hour oven dried method (AACC Method 44/15A/1981).

#### OFFENCE AND PENALTIES

25. Any person who contravenes or fails to comply with any provision of these regulations shall be guilty of an offence and upon conviction be liable to a fine or imprisonment in accordance with section 11 of the Act.

FIGURE 2. SIZE OF KERNELS AND BROKEN KERNELS



<sup>a</sup> Not passing through a round perforation of 1.4 mm in diameter

L is the average length

**ANNEXURES**  
**MAXIMUM AND MINIMUM PERCENTAGE(%) PERMISSIBLE DEVIATIONS FOR BROWN RICE**

**TABLE 3**

	NATURE OF DEFECTS	STANDARDS FOR GRADES OF BROWN RICE						
		BROWN RICE				BROWN PARBOILED RICE		
			Premium grade	Standard grade	Value grade	Premium grade	Standard grade	Value grade
<b>1.</b>	<b>Grain Composition</b>							
1.1	Head Rice (Min %)	Min %	95	90	80	95	90	80
1.2	Whole Kernel	Min %	80	80	80	80	80	80
1.3	Large Broken Kernel	Max %	4.0	5.0	7.0	2.0	5.0	7.0
1.4	Small Broken Kernel	Max %	0.1	0.5	0.5	0.5	0.5	0.7
<b>2.</b>	<b>Impurities</b>							
2.1	Under developed, immature kernels, other seeds and Foreign matter individually or combined	Max %	0.5	1.0	1.0	0.1	0.5	1.0
2.2	Stones and sand	Max %	0.1	0.4	0.2	0.4	0.2	0.4
<b>3.</b>	<b>Defective kernels</b>							
3.1	damaged kernels	Max %	1.0	2.5	3.0	1.0	2.0	4.0
3.2	Yellow kernels	Max %	0.1	0.2	0.6	1.5	1.5	2.0
3.3	Paddy grains/kg	Max	2.0	2.5	2.5	1.0	2.0	2.5
3.4	Chalky kernels	Max %	2.0	3.0	5.0	2.0	4.0	6.0
3.5	Red kernels and/or undermilled kernels	Max %	1.0	2.5	3.5	1.0	4.0	12.0
3.6	Total Pecks and partly black kernels	Max %	1.0	2.0	2.0	1.5	2.0	2.5
3.7	Waxy/glutinous rice kernels	Max %	1.5	1.5	1.5	1.5	1.5	1.5

**MAXIMUM AND MINIMUM PERCENTAGE(%) PERMISSIBLE DEVIATIONS FOR WHITE RICE**

**TABLE 4**

	NATURE OF DEFECTS		STANDARDS FOR GRADES OF WHITE RICE					
			WHITE RICE			WHITE PARBOILED RICE		
			Premium grade	Standard grade	Value grade	Premium grade	Standard grade	Value grade
<b>1.</b>	<b>Grain Composition</b>							
1.1	milling degree	Min %	Extra-well-milled	Well-milled	Well-milled	Extra-well-milled	Well-milled	Well-milled
1.2	Head Rice	Min %	95	90	80	95	90	80
1.3	Whole Kernel	Min %	60	60	60	80	80	75
1.4	Large Broken Kernel	Max %	4.0	4.5	5.0	4.0	7.0	12.0
1.5	Small Broken Kernel	Max %	0.1	0.5	0.5	0.5	0.5	0.7
<b>2.</b>	<b>Impurities</b>	Max %						
2.1	Under developed, immature kernels, other seeds and Foreign matter individually or combined	Max %	0.1	0.2	0.2	0.2	0.2	0.4
2.2	Stones and sand	Max %	0.1	0.4	0.2	0.4	0.2	0.4
<b>3.</b>	<b>Defective kernels</b>							
3.1	Damaged kernels	Max %	0.25	0.25	0.50	1.0	1.0	1.5
3.2	Yellow kernels/ Heat damage	Max %	0.1	0.2	0.2	0.25	0.50	0.75
3.3	Paddy (grains/kg)	Max	3.0	5.0	5.0	3.0	5.0	5.0
3.4	Chalky kernels	Max %	3.0	6.0	6.0	-	-	-
3.5	Red and/or undermilled kernels	Max %	0.5	0.5	0.5	0.5	1.0	2.0

	NATURE OF DEFECTS		STANDARDS FOR GRADES OF WHITE RICE					
			WHITE RICE			WHITE PARBOILED RICE		
3.6	Total Pecks/partly black kernels	Max %	1.0	2.0	2.0	1.5	2.0	2.5
3.7	Waxy rice/Glutinous rice kernels	Max %	1.5	1.5	1.5	1.5	1.5	1.5
	Black kernels	Min %				0.1	0.15	0.2

*Explanatory note: - means not applicable \* means no limit -*