

No. R. 866

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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 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; and
- (b) 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;

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

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

"consignment" means a quantity of rice 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 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 the different classes;

"damaged kernels" are kernels, whole or broken, showing obvious deterioration due to moisture, pests, diseases, or other causes, but excluding heat-damaged kernels;

"defective kernels" are the heat damaged kernels, the damaged kernels, the immature kernels, the chalky kernels, the red kernels, the red-streaked kernels, and pecks;

"extra-well-milled rice" means rice kernel from which the hull, the germ and the bran layers have been completely removed;

"foreign matter" in relation to rice, means all matter other than rice such as dust, stones, insects, other crop seeds etc;

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

"glutinous 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;

"heat-damaged kernels" (yellow kernels) are kernels, whole or broken, that have changed their normal colour as a result of heating. This category includes whole or broken kernels that are yellow due to alteration. Parboiled rice found in a batch of non-parboiled rice is also included in this category;

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

"**husked rice**" means paddy rice ["brown rice" is sometimes used as a synonym] from which the husk only has been removed;

"**immature kernels**" are unripe and /or undeveloped whole or broken kernels. Immature kernels include malformed kernels;

"**insect**" means any insect which is injurious to stored rice, irrespective of the stage of development of the insect;

"**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**" refers to a 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 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;

"**pecks**" are whole or broken kernels of parboiled rice of which more than one-quarter of the surface is dark brown or black in colour due to the parboiling process;

"**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.;

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

"**paddy rice**" means rice 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;

"**red kernels**" are whole or broken kernels with red-coloured pericarp covering more than one-quarter of their surface, but excluding heat damaged kernels;

"**red-streaked kernels**" are kernels, whole or broken, with red streaks, the lengths of which are equal to or greater than one-half of the whole kernel, but where the surface area covered by these red streaks is less than one-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;

"**rice**" means whole or broken kernels obtained from the species *Oryza sativa* L.;

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

"**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;

"**waxy rice or glutinous**" rice are those varieties of rice whose kernels have a white opaque appearance; and

"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.

Restriction on the sale of rice

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

3. Notwithstanding the provisions of regulations 4 and 5, all consignments of rice shall-
- (a) be free from abnormal flavours and odours;
 - (b) be free from heavy metals limits set out in the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972);
 - (c) be safe and suitable for human consumption;
 - (d) 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);
 - (e) comply with the maximum residue levels prescribed for agricultural remedies in terms of Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972);
 - (f) have moisture content not exceeding 14 percent;
 - (g) be free from insects and mites;
 - (h) be free from organisms of phytosanitary importance as determined by Agricultural Pest Act, 1983 (Act No. 36 of 1983); and

- (i) not have a deviation specified in column 1 of Table 2 to a larger extent than the applicable maximum specified in column 2, 3, 4 or 5 of Table 2 opposite thereof for the class concerned.

Classes of rice

4. All rice shall be classified according to the length of grain as defined by regulation 5 -
 - (a) Long grain;
 - (b) Medium grain; or
 - (c) Short grain.

Standards for classes

5. (1) The standards for grain length shall be as follows:
 - (a) Long grain rice – rice with 70 % or more of whole milled rice grains having a kernel length of 6.6 mm or more.
 - (b) Medium grain rice – rice with 70% or more of whole milled rice having a kernel length of 5.5 mm but less than 6.6 mm; and
 - (c) Short grain rice – rice with 70% or more of whole milled rice having a kernel length of less than 5.5 mm.
- (2) Milled rice may be further classified into the following degree of milling:
 - (a) Under milled rice;
 - (b) Well-milled rice; or
 - (c) Extra-well-milled rice.

PART II

CONTAINERS, PACKING AND MARKING REQUIREMENTS

Requirements for containers

6. (1) Rice shall be packaged in containers which will safeguard the hygienic, nutritional and organoleptic qualities of the food.
 - (2) The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They should not impart any toxic substance or undesirable odour or flavour to the product.
 - (3) When the product is packaged in bags, they must be clean, sturdy and strongly sewn or sealed.

Packing requirements

7. Rice of different classes shall be packed in different containers, or stored separately.

Marking requirements

8. (1) Each container in which rice is packed shall be marked in clearly legible letters with-

- (a) the name of the product: Provided that the product name shall be in accordance with the definitions in Regulation 1. The alternative name given in parenthesis may be used.
- (b) the class of rice.
- (c) degree of milling (optional).
- (d) the expression "Product of" followed by the name of the country of origin thereof or the country of origin declared as required by regulations published in terms of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972).
- (e) Registered Trade Mark where applicable/ Product Brand of the Product.

(2) Each container in which rice in retail quantities are sold, shall, either on the main panel or in another conspicuous place thereon, be marked with-

- (a) the name and address of the packer of the rice as required by regulation 10; and
- (b) the net weight as required in terms the Trade Metrology Act, 1973 (Act No. 77 of 1973).

(3) The particulars referred to in sub regulation (1) and (2) shall be indicated in clearly legible letters and figures-

- (a) that are in each separate case of the same colour, type and size;
- (b) that appear on a uniform and contrasting background; and
- (c) of which the vertical height is at least 5,0mm for pack sizes equal to or larger than 5kg in weight and 2mm for pack sizes less than 5kg in weight: Provided that the indication of the name and address of the packer may be of a vertical height of at least 2mm.

Marking of containers in which Rice is packed in bulk quantities

9. (1) Subject to the provisions of subregulation (2), each container containing Rice in bulk, shall be marked clearly and legibly with block letters on the container itself, or on a label affixed to the container, with the following particulars:

- (a) the name of the product shown at least as Rice;
- (b) the class of the Rice: Provided that the class may be omitted if the Rice have not been classified yet, or in the case of imported Rice destined for a purpose other than sale;
- (c) a lot identification;
- (d) the country of origin; and
- (e) the name and address of the packer of the rice as required by regulation 10: Provided that the lot identification and the name and address of the packer may be replaced by an identification mark, if such identification mark is clearly identifiable with the accompanying sales documents.

(2) The country of origin may in the case of rice destined for further processing or packing be omitted, if the country of origin is indicated on the accompanying sales documents.

Indications of packer

10. (1) The name of the packer of rice that is marked on the container shall –
- (a) consist of the initials and surname or trade name of the packer or, in the case of imported rice in retail quantities, the importer concerned; and
 - (b) be preceded by the expression "Packed by" or, in the case of Rice imported into the Republic in the containers in which they are to be sold in the retail trade, be preceded by the expression "Imported by".
- (2) The address as contemplated in sub-regulation 1 of the packer of Rice and be marked on such container immediately after the particulars referred to in sub-regulation (1).
- (3) If rice is packed on behalf of a person –
- (a) the particulars referred to in subregulation (1) (a) shall be replaced by the initials and surname or trade name of the person on whose behalf the Rice have been packed;
 - (b) such initials and surname or trade name shall be preceded by the expression "packed for";
 - (c) the address of such person shall be indicated in the place of the address referred to in sub regulation (2);
 - (d) such address shall be marked on a container immediately after the particulars referred to in paragraph (a); and
 - (e) the particulars referred to in sub-regulations (1) and (2) may in addition thereto be marked on a container.

PART III**SAMPLING****General**

11. (1) A sample of a consignment of rice shall for the purpose of the application of these regulations be obtained by –
- (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 Table 1;
 - (ii) sampling each such container by hand in the manner set out in regulation 10: 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 13 or by hand as contemplated in regulation 12 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 with a grain probe as contemplated in regulation 13 or by hand as contemplated in regulation 12: 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 11, 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

12. 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 divide it by means of a sample divider to obtain a sample of at least 1kg of material.

Sampling by means of a bag probe

13. (1) The sampling of a consignment with a bag probe shall be done as follows:
- (a) Insert the tapered end of the bag probe towards 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

14. A working sample shall be obtained by dividing the representative sample of the consignment according to the ICC 101/1 method.

PART IV

DETERMINATION OF OTHER SUBSTANCES

Determination of undesirable odours and harmful substances

15. A sample of a consignment of rice shall be sensorially assessed and/or chemically analysed in order to determine -

- (a) whether it has undesirable flavours or odour: Provided that a working sample of 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 content

16. A consignment of rice shall be sensorially 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, insects and mites.

Determination of the length of the kernel

17. The length of the kernels in a in a consignment of rice shall be determined as follows-

- (a) Obtain two sets of 100 kernels from the sample free of any broken parts, by random selection;
- (b) Measure the length of the kernels using a micrometer 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 the procedure from paragraph (a).
- (d) Such average length determined shall be the average length of the kernels in the consignment concerned.

PART V

DEFECTIVE KERNELS

Determination of the percentage damaged kernels, immature kernels, red kernels in husked (brown) rice.

18. The percentage of damaged kernels, immature kernels and red kernels in husked (brown) rice shall be determined as follows:

- (a) Obtain a working sample of at least 100g rice from the representative sample.
- (b) Remove all damaged kernels, immature kernels and red kernels from the working sample and determine the mass of the damaged kernels, immature kernels and red kernels separately.
- (c) Express the respective masses thus determined as a percentage of the mass of the working sample.
- (d) Such respective percentages represent the percentage damaged kernels, immature kernels and red kernels in the consignment concerned.

Determination of the percentage heat damaged kernels, chalky kernels and waxy kernels in the husked (brown) rice.

19. The percentage heat damaged kernels, chalky kernels and waxy kernels in husked (brown) rice shall be determined as follows:

- (a) Obtain a working sample of at least 100g rice from the representative sample and mill the working sample with a suitable instrument.
- (b) Remove all the heat damaged kernels, the chalky kernels and the waxy kernels from the milled sample and determine the mass of the heat damaged kernels, chalky kernels and waxy kernels separately.
- (c) Express the respective masses thus determined as a percentage of the mass of the milled sample.
- (d) Such respective percentages represent the percentage heat damaged kernels, chalky kernels and waxy kernels in the consignment concerned.

Determination of percentage of damaged kernels, the immature kernels and red kernels in the husked (brown) parboiled rice.

20. The percentage of damaged kernels, immature kernels and red kernels in the husked parboiled rice shall be determined as follows:

- (a) Obtain a working sample of at least 100g rice from the representative sample.

- (b) Remove all damaged kernels, immature kernels and red kernels from the working sample and determine the mass of the damaged kernels, immature kernels and red kernels separately .
- (c) Express the respective masses thus determined as a percentage of the mass of the working sample.
- (d) Such respective percentages represent the percentage damaged kernels, immature kernels and red kernels in the consignment concerned.

Determination of the percentage of the heat damaged kernels, and pecks in husked (brown) parboiled rice.

21. The percentage of the heat damaged kernels, and pecks in husked (brown) parboiled rice shall be determined as follows:

- (a) Obtain a working sample of at least 100g rice from the representative sample and mill the working sample with a suitable instrument.
- (b) Remove all heat damaged kernels and pecks from the milled sample and determine the mass of the heat damaged kernels and pecks separately.
- (c) Express the respective masses thus determined as a percentage of the mass of the milled sample.
- (d) Such respective percentages represent the percentage heat damaged kernels and pecks in the consignment concerned.

Determination of percentage heat damaged kernels, damaged kernels, immature kernels, chalky kernels, red kernels, red-streaked kernels and waxy kernels in milled (white) rice.

22. The percentage of heat damaged kernels, damaged kernels, immature kernels chalky kernels, red kernels, red-streaked kernels and waxy kernels in milled (white) rice shall be determined as follows:

- (a) Obtain a working sample of at least 150g rice from the representative sample.
- (b) Remove all heat damaged kernels, damaged kernels, immature, chalky kernels, red kernels, red-streaked kernels and waxy kernels from the working sample and determine the mass of the heat damaged kernels, damaged kernels, immature, chalky kernels, red kernels, red-streaked kernels and waxy kernels separately.
- (c) Express the respective masses thus determined as a percentage of the mass of the working sample.
- (d) Such percentages represent the percentage heat damaged kernels, damaged kernels, immature kernels, chalky kernels, red kernels, red streaked kernels and waxy kernels in the consignment concerned.

Determination of percentage heat damaged kernels, damaged kernels, immature kernels, red kernels, red streaked kernels, and pecks in milled (white) parboiled rice.

23. The percentage heat damaged kernels, damaged kernels, immature kernels, red kernels, red streaked kernels, and pecks in milled (white) parboiled rice shall be determined as follows:

- (a) Obtain a working sample of at least 150g rice from the representative sample.
- (b) Remove all heat damaged kernels, damaged kernels, immature kernels, red kernels, the red streaked kernels and pecks from the working sample and determine the mass of the

heat damaged kernels, damaged kernels, immature kernels, red kernels, red-streaked kernels and pecks separately.

- (c) Express the respective masses thus determined as a percentage of the mass of the working sample.
- (d) Such respective percentages represent the percentage heat damaged kernels, damaged kernels, immature kernels, red kernels, red streaked kernels and pecks in the consignment concerned.

Determination of percentage the waxy rice in parboiled rice.

24. The percentage waxy rice in parboiled rice shall be determined as follows:
- (a) Obtain a working sample of at least 100g 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 redish brown kernels of waxy rice from the dark blue kernels of non waxy kernels
 - (e) Determine the mass of the waxy rice portion and express it as a percentage of the mass of the working sample.
 - (f) Such percentage represent the percentage waxy rice in the consignment concerned.

PART VI

MOISTURE CONTENT

Determination of moisture content

25. The moisture content of a consignment of rice may be determined according to any suitable method: Provided that the result thus obtained is in accordance with the maximum permissible deviation for a class 1 moisture meter as detailed in ISO 7700/2, based on results of the 72 hour, 103°C oven dried method (AACC Method 44/15A/1981).

OFFENCE AND PENALTIES

26. 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 of not exceeding R50 000 or to imprisonment for a period not exceeding two years, or to both that fine or imprisonment.

ANNEXURES

TABLE 1

FREQUENCY OF SAMPLING

| Number of containers comprising quantity of Rice 1 | Minimum number of containers to be selected at random 2 |
|---|--|
| Less than 10 | 2 |
| 11 to 50 | 4 |
| More than 50 | 6 |

TABLE 2

STANDARDS FOR CLASSES OF HUSKED AND MILLED RICE

| Deviation | Maximum permissible deviation | | | |
|---------------------------------|-------------------------------|---------------------|-------------------------------|-------------------------------|
| | Husked (Brown) Rice | Milled (White) Rice | Husked (Brown) Parboiled Rice | Milled (White) Parboiled Rice |
| 1. Heat-damaged kernels. | 4.0% | 3.0% | 8.0% | 6.0% |
| 2. Damaged kernels. | 4.0% | 3.0% | 4.0% | 3.0% |
| 3. Immature kernels. | 12% | 2.0% | 12.0% | 2.0% |
| 4. Chalky kernels. | 11.0% | 11.0% | - | - |
| 5. Red kernels. | 12.0% | 4.0% | 12.0% | 4.0% |
| 6. Red-streaked kernels. | - | 8.0% | - | 8.0% |
| 7. Pecks. | - | - | 4.0% | 2.0% |
| 8. Waxy rice or glutinous rice. | 1% | 1% | 1% | 1% |