

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية
GCC STANDARDIZATION ORGANIZATION (GSO)

مشروع نهائي
Final Draft of Standard FDS

اعداد اللجنة الفنية الخليجية رقم TC 05

Prepared by GSO Technical Committee No.TC 05

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حبوب الأرز
RICE KERNELS

This document is a draft Gulf Technical regulation circulated for comments. It is, therefore, subject to alteration and modification and may not be referred to as a Gulf Technical Regulation until approved by GSO.

هذه الوثيقة مشروع لائحة فنية خليجية تم توزيعها لإبداء الرأي والملاحظات بشأنها، لذلك فإنها عرضة للتغيير والتبديل، ولا يجوز الرجوع إليها كلائحة فنية خليجية إلا بعد اعتمادها من الهيئة.

ICS : 67.060

تقديم

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية هيئة إقليمية تضم في عضويتها الأجهزة الوطنية للمواصفات والمقاييس في دول الخليج العربية، ومن مهام الهيئة إعداد المواصفات القياسية بواسطة لجان فنية متخصصة.

قرر مجلس ادارة هيئة التقييس لدول مجلس التعاون لدول الخليج العربية في اجتماعه رقم ... الذي عقد بتاريخ .../.../... هـ، الموافق ... / ... / ... م اعتماد تحديث المواصفة القياسية الخليجية GSO 2012/1003 "حبوب الأرز" التي تم دراستها ضمن برنامج عمل اللجنة الفنية رقم (5) " قطاع مواصفات المنتجات الغذائية والزراعية " بتحديث المواصفة القياسية الخليجية رقم ، المدرجة في خطة سلطنة عمان.
على أن تلغي المواصفة رقم GSO 2012/1003 وتحل محلها.

RICE KERNELS**1. SCOPE AND FIELD OF APPLICATION**

This standard applies to **husked rice, milled rice**, enriched and parboiled rice, all for direct human consumption, presented in packaged form or sold loose from the package directly to the consumer. It doesn't apply to other products derived from rice or to glutinous rice

2. COMPLEMENTARY REFERENCES

- 2.1 GSO 9 "Labeling of Prepackaged Foods".
- 2.2 GSO 21 "Hygienic Regulations for Food Plants and their Personnel".
- 2.3 GSO 168 "Conditions of Storage Facilities for Dry and Canned Food Stuffs".
- 2.4 GSO ISO 950 "Cereals-Sampling (as grains)".
- 2.5 **GSO 382 "Maximum Limits for Pesticide Residue in Agriculture and Food Products"**.
- 2.6 **GSO 150-2 "Expiration dates for food products - Part 2: Voluntary expiration dates"**.
- 2.7 GSO 839 "Food Packages, Part I, General Regulations".
- 2.8 **GSO 193 Contaminant and Toxin in Food and Feed.**
- 2.9 GSO 1016 "Microbiological Limits Permitted in Food Products.
- 2.10 GSO 1806 "Methods of Test for kernels Rice".
- 2.11 **GSO 1307 " Methods of test for milled rice "**
- 2.12 GSO 1863 "Food Packages, Part II, Plastic Packages, General Regulations".
- 2.13 **GSO 2142 "General Requirements for Genetically Modified Processed Food and Feed"**.

2.14 GSO 2333”Requirements for Nutrition and Health Claim in the Food”.

3. DEFINITIONS

- 3.1 Rice: is **whole** and broken kernels obtained from the species *Oriza Sativa L.*
- 3.2 Paddy rice ((: is rice that has retained its husk.
- 3.3 **Husked rice (Brown rice or Cargo rice):** is paddy rice from which only husk has been removed. **The process of husking and handling may result in some loss of bran.**
- 3.4 **Milled rice (White rice):** is **husked** rice from which all or part of the bran and germ have been removed by milling.
- 3.5 **Parboiled rice: maybe 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.**
- 3.6 Glutinous rice (waxy rice): kernels of special varieties of rice 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.
- 3.7 Enriched rice: white rice which has been enriched with suitable vitamins and minerals.
- 3.8 Basmati Rice: Basmati is the customary name for certain varieties of rice that having special characteristics (fluffy, length, aroma, taste, separate grains) and are grown exclusively in specific areas of India and Pakistan, and include the following nine approved rice varieties:
- 1- Basmati 370
 - 2- Basmati 386-India
 - 3- Basmati 217
 - 4- Type 3 (Dehradun)
 - 5- Kernel (Pak Basmati)
 - 6- Taraori (Karnal Local, HBC-19)
 - 7- Ranbir Basmati (IET 11348)

8- Pusa Basmati-1 (IET- 10364)

9- Super Basmati

Or any Basmati rice variety that will be approved in the future

- 3.9 Heat-damaged kernels: kernels, whole or broken, that have changed their normal color as a result of heating. These include whole or broken yellow kernels **that are yellow due to alteration and** parboiled rice in a batch of non-parboiled rice.
- 3.10 Damaged kernels: kernels, whole or broken, showing obvious deterioration due to moisture, pests, diseases, or other causes, but excluding heat-damaged kernels.
- 3.11 **Chalky** kernels: are whole or broken kernels except for glutinous rice, of which at least three-quarters of the surface have an opaque and floury appearance.
- 3.12 **Red kernels: are whole or broken kernels with a red-colored pericarp covering more than one-quarter of their surface-**
- 3.13 Red-streaked kernels: are kernels, whole or broken, with red streaks, the lengths of which may be equal to or greater than one-half of that of the whole kernel, but the surface area covered by these red streaks shall be less than one-quarter of the total surface.
- 3.14 Pecks: are whole or broken kernels of parboiled rice of which more than one quarter of the surface is dark brown or black in color.
- 3.15 Immature kernels: are unripe and/or undeveloped whole or broken kernels.
- 3.16 Extraneous (foreign) matter: organic and inorganic components other than kernels of rice.
- 3.16.1 Filth (animal organic impurities): impurities of animal origin (including dead insects or their parts, rodents, birds, and mites excreta).
- 3.16.2 **Other organic impurities:** organic components of plant origin (such as foreign seeds, husk, bran, straw, paper, wood and thread...**etc**).
- 3.16.3 Inorganic impurities: such as stones, sand dust, plastics, glass and metals.**etc**).

4. CLASSIFICATION

- 4.1 If rice is classified as long grain, medium grain or short grain, the classification should be in accordance with one of the following specifications:
- 4.1.1 **Option 1:** kernel length/ width ratio as shown in Table (1).

Table (1): Classification of rice according to kernel length/width ratio (Option 1).

Class	Kernel length /width ratio	
	Husked rice (Brown rice) Parboiled or non-parboiled	Milling rice (White rice) Parboiled or non-parboiled
Long grain rice	3.1 or more	3.0 or more
Medium grain rice	2.1 – 3.0	2.0 – 2.9
Short grain rice	2.0 or less	1.9 or less

4.1.2 **Option 2:** the kernel length (mm) as shown in Table (2).

Table (2): Classification of rice according to the kernel length mm (Option 2)

Class	Kernel length (mm)
Long grain rice	6.6 or more
Medium grain rice	6.2 or more but less than 6.6
Short grain rice	Less than 6.2

4.1.3 **Option 3:** a combination of the kernel length (mm) and the length/width ratio as shown in Table (3).

Table (3): Classification of rice according to the kernel length and the length/width ratio (Option 3)

Class	Kernel length (mm)	Length/width ratio
Long grain rice	More than 6.0	more than 2 but less than 3 or 3 or more
Medium grain rice	5.2 – 6.0	Less than 3.0
Short grain rice	5.2 or less	Less than 2.0

4.2 White rice color may be classified according to the following degrees of milling:

4.2.1 **White brown rice (Under-milled rice):** is obtained by milling brown rice but not to the degree necessary to meet the requirements of white rice.

- 4.2.2 **White rice (Well-milled rice):** is obtained by milling brown rice in such a way that some of the germ, all the external layers and most of the internal layers of the bran have been removed.
- 4.2.3 **Extra-white rice (Extra-well milled rice):** is obtained by milling brown rice in such a way that exceed white rice degree. Almost all of the germ, all of the external layers the largest part of the internal layers of the bran, and some of the endosperm have been removed.
- 4.3 Rice may be classified according to broken part as the following specifications:
- 4.3.1 **Whole kernel:** kernels without any broken part.
- 4.3.2 **Head rice:** kernels, the length of which is equal to or greater than three quarters of the average length of the corresponding whole kernels.
- 4.3.3 **Large broken kernels:** are fragments of kernel, the length of which is less than three-quarters but greater than one-half of the average length of a corresponding whole kernels.
- 4.3.4 **Medium broken kernels:** are fragments of kernel, the length of which is equal to or less than one-half but greater than one-quarter of the average length of a corresponding whole kernels.
- 4.3.5 **Small broken kernels:** are fragments of kernel, the length of which is equal to or less than one-quarter of the average length of a corresponding whole kernels but which does not pass through a metal sieve with round perforation 1.4 mm in diameter.
- 4.3.6 **Chips:** are fragments of kernel which pass through a metal sieve with round perforations 1.4 mm in diameter.

5. REQUIREMENTS

The following requirements shall be met in kernels of rice:

- 5.1 It shall be clean, sound and free from abnormal odours or odour which indicates deterioration.
- 5.2 It shall be free from fungi growth, live insects in all their life stages and live mites...
etc.
- 5.3 It shall be free from toxic or harmful seeds.
- 5.4 It shall have similar color, shape, kind and variety.
- 5.5 The moisture content shall not be greater than 15% (m/m).
- 5.6 It shall be processed according to hygienic regulations for food plants and their personnel proscribed in the GSO standard mentioned in item 2.2.

- 5.7 Pesticide residues shall not exceed the limits prescribed in the GSO standard mentioned in **item 2.5**.
- 5.8 **Contamination, toxins and radiation level shall not exceed the Limits prescribed in the GSO standard mentioned in item 2.8**
- 5.9 Microbiological criteria shall not exceed the limits prescribed in the GSO standard mentioned in **item 2.9**
- 5.10 **The classification shall comply with specifications of one of the options described in item 4.**
- 5.11 **In case of enriched rice, the minimum and maximum allowance of vitamins and minerals as mentioned in Table 4.**
- 5.12 The maximum contents of defective kernels, other kinds of rice and extraneous matter shall not be greater than the values specified in Table 5.
- 5.13 In case of modified genetic rice shall be according to GSO standard mentioned in **item 2.13**
- 5.14 In case of Basmati rice item (3.8) the product shall contain at least 93% Basmati rice, if it is below than **that** it cannot be named Basmati rice.

Table (4): Minimum and maximum allowance of vitamins and minerals in enriched rice

Vitamins and minerals	Minimum allowances ppm	Maximum allowances ppm
Thiamin (B1)	4.4	8.8
Riboflavin (B2)	2.6	5.3
Niacin (B3)	35	70
Iron	29	57

Table (5): Maximum contents of defective kernels, other kinds of rice and extraneous matter.

(A) Defective kernels

Defect described	Maximum content % m/m			
	Husked rice (brown)	Milled rice (White)	Husked (brown) rice Parboiled	Milled (White) rice parboiled
Heat-damaged	4.0*	3.0	8.0*	6.0
Damaged (no heat)	4.0	3.0	4.0	3.0
Immature	12.0	2.0	12.0	2.0
Chalky	11.0*	11.0	-	-
Red	12.0	4.0	12.0	4.0
Red-streaked	-	8.0	-	8.0
Pecks	-	-	4.0*	2.0
Chips	0.1	0.1	0.1	0.1

* After milling for control purposes.

(B) Other types of rice:

other types of rice	Maximum content % m/m			
	Husked rice (brown)	Milled rice (White)	Husked (brown) rice Parboiled	Milled (White) rice parboiled
Paddy rice	2.5	0.3	2.5	0.3
Husked (Brown) Rice	-	1.0	-	1.0
Milled (white) rice	-	-	2.0	2.0
Glutinous rice	1.0	1.0	1.0	1.0

(C) Extraneous matter:

Extraneous matter	Maximum content % m/m

	Husked rice (brown)	Milled rice (White)	Husked (brown) rice Parboiled	Milled (White) rice parboiled
Other Organic impurities	1.5	0.5	1.5	0.5
Filth	0.1	0.1	0.1	0.1
Inorganic impurities	0.1	0.1	0.1	0.1

6. SAMPLING

Samples shall be drawn according to the GSO standard mentioned in item 2.4

7. METHODS OF TEST

7.1 All necessary tests on the representative sample drawn according to item (6), shall be carried out according to the GSO standard mentioned in items 2.11.

7.2 In case of quantitative and qualitative analysis of Basmati rice, the following protocols are applied as guidelines:-

- Protocol for the identification of selected Basmati Rice varieties"- Food Standards Agency, london,and CAZS, Univeristy of Wales,Bangor – February 2005

- Protocol for the quantitative analysis of adulteration of Basmati rice with sherbati, mugad sugandha, pak 386 or superfine "- Food Standards Agency, london, and CAZS, Univeristy of Wales,Bangor – February 2006 .

8. PACKAGING TRANSPORTATION AND STORAGE

The following specifications shall be observed on packaging, transportation and storage.

8.1 Packaging:

without prejudice to the previsions of the GSO standard mentioned in items 2.7 and 2.14, kernels shall be packaged in suitable, clean, sufficiently strong, sealed and well stitched sacks or containers and, not previously used and have no contaminating effect on the product or its quality characteristics.

8.2 Transportation

Rice kernels shall be transported in such a suitable way as to protect their quality characteristics. Transportation methods shall not be used for carrying pesticides or any other harmful or poisonous materials.

8.3 Storage

Without prejudice to the provisions of the GSO standard mentioned in item 2.3, rice kernels shall be stored in such a way as to safeguard the quality characteristics and to protect them from mechanical damage and contamination. Stores shall comply with hygienic requirements and shall prevent rice exposure to insects, rodents, birds, high moisture or temperature.

9. LABELLING

Without prejudice to the provisions of the GSO standard mentioned in item 2.1, the following information shall be indicated on each sack or container:

- 9.1 Rice type: white, brown, parboiled (white, brown).
- 9.2 Country of origin.
- 9.3 Length of kernels (long, medium, short) **with indication of which classification option is chosen according to clauses 4.**
- 9.4 White rice color **non** parboiled (white brown, white, extra white).
- 9.5 Cooking method. (voluntary)
- 9.6 **Production date or Crop year (..... crop) and expiry date in case the rice is packaged and fortified.**
- 9.7 Vitamins and minerals (if found).
- 9.8 Additives (if found).
- 9.9 produced from genetically modified organism or **irradiated** (if found).
- 9.10 In addition to the above mentioned, it shall only be indicated on sack or container if product contains at least 93% Basmati rice, if it is **below** 93% Basmati word cannot be used.

References:

CODEX STAN CAC 198-19 Amendment 2009 .