

International Standards' Organization – Rice Specification [ISO 7301]

1. Scope

This International Standard lays down the minimum specifications for rice (*Oryza sativa* L.) of the following types: husked rice, husked parboiled rice, milled rice and milled parboiled rice, suitable for human consumption, directly or after reconditioning, and which is the subject of international trade.

2. Normative references

The following standards contain provisions, which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 712: 1985, Cereals and cereal products – Determination of moisture content
(Routine reference method).

ISO 950: 1979, Cereals – Sampling (as grain).

3. Definitions

For the purposes of this International Standard, the following definitions apply.

3.1. paddy: paddy rice: rough rice: Rice retaining its husk after threshing.

3.2. husked rice: cargo rice [“brown rice” is sometimes used as a synonym]: Paddy from which the husk only has been removed.

The processes of husking and handling, particularly of parboiled rice, may result in some loss of bran.

3.3. milled rice: Rice obtained after milling which involves removing all or part of the bran and germ from the husked rice.

It could further be classified into the following degrees of milling.

a) undermilled rice: Rice obtained by milling husked rice but not to the degree necessary to meet the requirements of well-milled rice.

b) well-milled rice: Rice obtained by milling husked rice in such a way that some of the germ, and all the external layers and most of the internal layers of the bran have been removed.

- c) extra-well-milled rice: Rice obtained by milling husked rice in such a way that almost all the germ, and all the external layers and the largest part of the internal layers of the bran, and some of the endosperm, have been removed.
- 3.4. parboiled rice: Rice, the starch of which has been fully gelatinized by soaking paddy or husked rice in water followed by a heat treatment and a drying process.
- 3.5. glutinous rice: waxy rice: Special varieties of rice (*Oryza sativa* L. *glutinosa*) the kernels of 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.
- 3.6. size of kernels, broken kernels and chips
 - 3.6.1. whole kernel: Kernel without any broken part.
 - 3.6.2. head rice: Kernel, the length of which is greater than or equal to three quarters of the average length of the corresponding whole kernel.
 - 3.6.3. large broken kernel: Fragment of kernel, the length of which is less than three-quarters but greater than one-half of the average length of the corresponding whole kernel.
 - 3.6.4. medium broken kernel: Fragment of kernel, the length of which is less than or equal to one-half but greater than one-quarter of the average length of the corresponding whole kernel.
 - 3.6.5. small broken kernel: Fragment of kernel, the length of which is less than or equal to one-quarter of the average length of the corresponding whole kernel but which does not pass through a metal sieve with round perforations 1.4 mm in diameter.
 - 3.6.6. chip: Fragment of kernel which passes through a metal sieve with round perforations 1.4 mm in diameter.
- 3.7. extraneous matter: Organic and inorganic components other than kernels of rice, whole or broken
- 3.8. heat-damaged kernels: Kernels, whole or broken, that have changed their normal color as a result of heating. This category includes whole or broken kernels that are yellow due to alteration. Parboiled rice in a batch of non-parboiled rice is also included in this category.
- 3.9. damaged kernels: Kernels, whole or broken, showing obvious deterioration due to moisture, pests, disease or other causes, but excluding heat-damaged kernels
- 3.10. immature kernels: Kernels, whole or broken, which are unripe and/or underdeveloped.

- 3.11. chalky kernels: Kernels, whole or broken, except for glutinous rice, of which at least three-quarters of the surface has an opaque and floury appearance.
- 3.12. red kernels: Kernels, whole or broken, having a red coloration covering more than one-quarter of their surface, but excluding heat-damaged kernels (3.8).
- 3.13. red-streaked kernels: Kernels, whole or broken, with red streaks, the lengths 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 one-quarter of the total surface.
- 3.14. pecks: Kernels, whole or broken, of parboiled rice of which more than one-quarter of the surface is dark brown or black in color.
- 3.15. other kinds of rice
 - 3.15.1 Paddy in husked rice, in husked parboiled rice, in milled rice and in milled parboiled rice.
 - 3.15.2 Husked rice in husked parboiled rice, in milled rice and in milled parboiled rice.
 - 3.15.3 Milled rice in husked parboiled rice and in milled parboiled rice.
 - 3.15.4 Glutinous in non-glutinous rice.

4. Specification

4.1 General, organoleptic and health characteristics

Kernels of rice, whether or not parboiled, husked or milled, and whether or not whole or broken, shall be sound, clean and free from foreign odors or odor which indicates deterioration.

The levels of additives and pesticide residues and other contaminants shall not exceed the maximum limits permitted by the national regulations of the country of destination or, in their absence, by the joint FAO/WHO Commission of Codes Alimentarius.

The presence of living insects, which are visible to the naked eye, is not permitted.

4.2 Physical and chemical characteristics

- 4.2.1 The moisture content, determined in accordance with ISO 712, shall be not greater than 15% (m/m)

Note: Lower moisture contents may be required for certain destinations depending on the climate, duration of transport and storage. For further details, see ISO 6322, parts 1, 2 and 3.

- 4.2.2 The maximum contents of extraneous matter, defective kernels and other kinds of rice in husked and milled rice, whether or not parboiled, and determined in accordance with the method described in annex A, shall be not greater than the values specified in table 1.
- 4.2.3 All commercial contracts should be clearly the total percentage of broken kernels permitted, classified according to the agreed categories, and the relative proportions of each category, and the total percentage of extraneous matter and of defective kernels, determined in accordance with the method described in Annex A.

The proportion of chips shall not exceed 0.1%.

Table 1

Defect	Reference to the definition	Husked rice	Milled rice (non-glutinous)	Husked parboiled rice	Milled parboiled rice
Extraneous matter	3.7				
a) organic		1.5	0.5	1.5	0.5
b) inorganic		0.5	0.5	0.5	0.5
Paddy	3.1	2.5	0.3	2.5	0.3
Husked rice	3.2	-	1.0	-	1.0
Milled rice	3.3	-	-	2.0	2.0
Heat-damaged kernels	3.8	4.0	3.0	8.0	6.0
Damaged kernels	3.9	4.0	3.0	4.0	3.0
Immature kernels	3.10	12.0	2.0	12.0	2.0
Chalky kernels	3.11	11.0	11.0	-	-
Red kernels	3.12	12.0	4.0	12.0	4.0
Red-streaked kernels	3.13	-	8.0	0	8.0
Glutinous rice	3.5	1.0	1.0	1.0	1.0
Pecks	3.14	-	-	4.0	2.0
After milling					