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IS 3648 (1975): Rice Bran as Livestock Feed [FAD 5: Livestock Feeds, Equipment and Systems]



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SPECIFICATION FOR
RICE BRAN AS LIVESTOCK FEED
(First Revision)

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Indian Standard
SPECIFICATION FOR
RICE BRAN AS LIVESTOCK FEED
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Indian Standard
SPECIFICATION FOR
RICE BRAN AS LIVESTOCK FEED
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 28 November 1975, after the draft finalized by the Animal Feeds Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 This standard was first issued in 1966. The gradual shift towards modernizing rice mills in the country, necessitated a review of the existing specification with a view to bringing it in line with the improved manufacturing practices. Rice bran as obtained by milling rice by different techniques varies considerably in its composition, particularly in its acid insoluble ash content. Since it is not practically feasible to distinguish and identify rice bran resulting from different processes, it was felt that differentiation of the product into grades would be helpful. Accordingly, in this revision provision has been made for two grades of rice bran. Requirements for various characteristics have been reviewed and modified and for that of total ash deleted.

0.3 An Indian Standard (IS:3593-1968*) covering requirements for solvent extracted rice bran for livestock feeding has been issued separately.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for rice bran for use as livestock feed.

*Specification for solvent-extracted rice bran as livestock feed (*first revision*).

†Rules for rounding off numerical values (*revised*).

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2. GRADES

2.1 Rice bran shall be of two grades, namely, Grade 1 and Grade 2.

3. REQUIREMENTS

3.1 **Description** — Rice bran is the pericarp or bran layer and germ of rice, with only such quantity of hull fragments, and chipped or broken rice as is unavoidable in the regular milling of edible rice. The material shall be free from adulterants, musty and stale odour, sour or rancid taste and from lumps, dirt and extraneous matter including iron or other metallic pieces. Rice bran shall be free from fungal or insect infestation.

3.2 The material shall also conform to the requirements prescribed in Table 1.

TABLE 1 REQUIREMENTS FOR RICE BRAN AS LIVESTOCK FEED

Sl No.	CHARACTERISTIC	REQUIREMENT		METHOD OF TEST [REF TO CL No. OF IS : 7874 (PART I) - 1975*]
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass <i>Max</i>	10	10	4
ii)	Crude protein (N × 6.25), percent by mass, <i>Min</i>	13	11	5
iii)	Crude fat, percent by mass, <i>Min</i>	15	12	7
iv)	Crude fibre, percent by mass, <i>Max</i>	10	12	8
v)	Acid insoluble ash, percent by mass, <i>Max</i>	5	8	10

NOTE — Requirements for items (ii) to (v) are on moisture-free basis.

*Methods of tests for animal feeds and feeding stuffs: Part I General methods.

4. PACKING AND MARKING

4.1 **Packing** — Unless otherwise agreed to between the purchaser and the vendor, the material shall be packed in sound jute bags. The mouth of each bag shall be either machine-stitched or rolled over and hand-stitched with strong jute twine.

4.2 **Marking** — Each bag shall be marked with the following information:

- a) Name of the material,
- b) Name of the manufacturer,
- c) Batch or code number, and
- d) Net mass in kg.

4.2.1 Each bag may also be marked with the Standard Mark

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING

5.1 The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in Appendix A.

6. TESTS

6.1 The tests shall be carried out as prescribed in the relevant clauses specified in col.5 of Table 1.

6.2 Pure chemicals and distilled water (*see* IS:1070-1960*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

A P P E N D I X A

(*Clause 5.1*)

SAMPLING OF RICE BRAN

A-1. GENERAL REQUIREMENTS

A-1.0 In drawing, preparing, storing and handling samples, care should be taken that the properties of the material are not affected. The following precautions and directions shall be observed.

A-1.1 Samples shall be taken in a protected place not exposed to damp air, dust or soot.

A-1.2 The sampling instrument shall be clean and dry when used.

A-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

*Specification for water, distilled quality (*revised*).

IS:3648 - 1975

A-1.4 The samples shall be placed in clean and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

A-1.5 Each container shall be sealed air tight with a stopper or a suitable closure after filling in such a way that it is not possible to open and reseal it without detection, and marked with full details of sampling, date of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

A-1.6 Samples shall be stored in such a manner that there is no deterioration of the material.

A-1.7 Sampling shall be done by a person agreed to between the purchaser and the vendor and if desired by any of them, in the presence of the purchaser (or his representative) and the vendor (or his representative).

A-2. SCALE OF SAMPLING

A-2.1 Lot — All the bags in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If a consignment is declared to consist of different batches of manufacture, the batches shall be grouped separately and the bags in each group shall constitute separate lots.

A-2.1.1 Samples shall be tested for each lot for ascertaining conformity of the material to the requirements of this specification.

A-2.2 The number of bags to be selected from the lot shall depend on the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

TABLE 2 NUMBER OF BAGS TO BE SELECTED FOR SAMPLING

Lot Size (1)	No. of Bags to be Selected (2)
n	N
Up to 50	1
51 ,, 100	3
101 ,, 300	4
301 ,, 500	5
501 and above	7

A-2.3 The bags shall be chosen at random from the lot and for this purpose a random number table as agreed to between the purchaser and the vendor shall be used (*see* IS : 4905-1968*). If such a table is not available, the following procedure shall be adopted:

Starting from any bag count 1, 2, 3, etc, up to r and so on in a systematic manner and withdraw the r th bag; r being the integral part of N/n ; where N is the total number of bags in the lot, and n the number of bags to be selected according to Table 2.

A-3. TEST SAMPLES AND REFEREE SAMPLES

A-3.1 Preparation of Individual Samples — Draw with an appropriate sampling instrument, equal quantities of the material from the top, bottom and the sides of each bag selected according to Table 2. The total quantity of the material drawn from each bag shall be not less than 1.5 kg. Mix all the portions of the material drawn from the same bag thoroughly. Take out about 0.75 kg of the material and divide it into three equal parts. Each portion, thus obtained, shall constitute the test sample representing that particular bag and shall be transferred immediately to clean and dry sample containers. These shall be labelled with particulars given in A-1.5. The individual sample thus obtained as above shall be formed into three sets in such a way that each set has a test sample representing each bag selected. One of the sets shall be for the purchaser, another for the vendor, and the third for the referee.

A-3.2 Preparation of Composite Samples — From the mixed material from each selected bag remaining after the individual samples have been taken, equal quantities of the material from each bag shall be taken and mixed together so as to form a composite sample weighing not less than 0.75 kg. This composite sample shall be divided into three equal parts and transferred to clean and dry containers and labelled with particulars given under A-1.5 and sealed airtight. One of these samples shall be for the purchaser, another for the vendor, and the third for the referee.

A-3.3 Referee Samples — Referee samples shall consist of a set of test samples (*see* A-3.1) and a composite sample (*see* A-3.2) and shall bear the seal of the purchaser and the vendor and shall be kept at a place agreed to between the two.

A-4. TESTING OF SAMPLES

A-4.1 Test for crude protein shall be conducted individually on each of the samples constituting a set of test samples (*see* A-3.1).

*Methods for random sampling.

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A-4.2 Tests for the remaining characteristics prescribed in Table 1 shall be conducted on the composite sample (*see A-3.2*).

A-5. CRITERIA FOR CONFORMITY

A-5.1 A lot shall be considered as conforming to the specification, when:

- a) each of the test results for crude protein satisfies the requirements as specified in Table 1, and
- b) the test results on the composite sample satisfy the requirements for the remaining characteristics specified in Table 1.

A-5.1.1 If one or more test results do not satisfy the requirements for protein, the following procedure shall be adopted for determining the conformity of the material for this characteristic:

Calculate the mean and range as follows:

$$\text{Mean } (\bar{X}) = \frac{\text{Sum of the test results}}{\text{Number of test samples}}$$

$$\text{Range } (R) = \text{Difference between the maximum and the minimum values of the test results.}$$

The requirement for crude protein shall be considered as fulfilled, if $\bar{X} - 0.4 R$ is equal to or greater than the requirement for crude protein.

A-5.1.2 If the requirements for any of the remaining characteristic(s) is not satisfied after testing the composite sample, a test or tests for the characteristic(s) not satisfying the requirement(s) shall be made on each of the test samples in the set. If the test results obtained on the individual samples satisfy the requirement(s) of the specification for the relevant characteristic(s), then the lot shall be considered as having satisfied the requirement(s) in respect of such characteristic(s).

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