

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3448 (1984): Rice Bran Oil [FAD 13: Oils and Oilseeds]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 3448 - 1984
(Reaffirmed 1994)

Indian Standard
SPECIFICATION FOR
RICE BRAN OIL
(Second Revision)

Second Reprint JANUARY 1998

UDC 665.333.5

© *Copyright* 1985

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR RICE BRAN OIL

(Second Revision)

Oils and Oilseeds Sectional Committee, CAFDC 5

<i>Chairman</i>	<i>Representing</i>
PROF M. M. CHAKRABARTY	Oil Technologists Association of India, Kanpur
<i>Members</i>	
PROF A. C. GUPTA (<i>Alternate</i> to Prof M. M. Chakrabarty)	Central Organization for Oil Industry and Trade, Bombay
SHRI S. N. AGARWAL	Directorate of Marketing and Inspection, Nagpur
SHRI H. P. GUPTA (<i>Alternate</i>)	Ministry of Defence (DGI)
AGRICULTURAL MARKETING ADVISER TO THE GOVERNMENT OF INDIA	Tata Oil Mills Co Ltd, Bombay
SHRI R. J. VERMA (<i>Alternate</i>)	Swastik Household and Industrial Products Ltd, Bombay
SHRI J. A. ASHTAPUTRE	Hindustan Lever Ltd, Bombay
SHRI P. N. AGARWAL (<i>Alternate</i>)	Central Committee for Food Standards (Ministry of Health and Family Welfare), New Delhi
DR B. P. BALIGA	National Test House, Calcutta
DR N. L. MURTY (<i>Alternate</i>)	Central Food Laboratory, Calcutta
SHRI M. A. BHATT	Khadi and Village Industries Commission, Bombay
SHRI C. R. KRISHNAMURTHY (<i>Alternate</i>)	Directorate General of Technical Development, New Delhi
DR N. V. BRINGI	
DR V. V. S. MANI (<i>Alternate</i>)	
SHRI D. S. CHADHA	
SHRIMATI DEBI MUKHERJEE (<i>Alternate</i>)	
SHRI P. K. CHAKRABORTY	
DR K. C. GUHA	
SHRI A. K. DHAR (<i>Alternate</i>)	
SHRI P. V. GUJAKATHI	
SHRI V. LAKSHMIKANTHAN (<i>Alternate</i>)	
SHRI R. C. GUPTA	
SHRI S. N. PANDEY (<i>Alternate</i>)	
SHRI S. P. GUPTA	
SHRI A. R. N. KULU (<i>Alternate</i>)	

(Continued on page 2)

© Copyright 1985

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI B. V. KANTAK	Godrej Soaps Ltd, Bombay
SHRI M. S. THAKUR (<i>Alternate</i>)	
DR M. K. KUNDU	Directorate of Vanaspati, Vegetable Oils and Fats (Ministry of Civil Supplies), New Delhi
DR G. LAKSHMINARAYANA	Regional Research Laboratory (CSIR), Hyderabad
DR A. J. PANTULU (<i>Alternate</i>)	
DR B. M. LAL	Indian Agricultural Research Institute (ICAR), New Delhi
SHRI T. V. MATHEW	Central Agmark Laboratory, Nagpur
SHRI M. R. GROVER (<i>Alternate</i>)	
SHRI R. K. MATHUR	Vanaspati Manufacturers' Association of India, Bombay
SHRI G. K. SOOD (<i>Alternate</i>)	
SHRI S. C. SINGHAL	Shriram Foods & Fertilizer Industries, New Delhi
SHRI T. N. AGGARWAL (<i>Alternate</i>)	
SHRI G. V. SIRUR	Solvent Extractors' Association of India, Bombay
SHRI L. KRISHAN KUMAR (<i>Alternate</i>)	
DR (SHRIMATI) KAMLA SOHNIE	Consumer Guidance Society of India, Bombay
DR C. SRINIVASULU	Regional Research Laboratory (CSIR), Bhubaneswar
DR (SHRIMATI) K. VIJAYALAKSHMI (<i>Alternate</i>)	
SHRI S. D. THIRUMALA RAO	Oil Technological Research Institute, Anantapur
SHRI G. AZEEMODDIN (<i>Alternate</i>)	
SHRI P. R. VISHWAMBHARAN	Central Warehousing Corporation, New Delhi
SHRI K. GOPINATHA MENON (<i>Alternate</i>)	
SHRI M. D. WASNIK	Directorate of Oilseeds Development, Hyderabad
SHRI S. P. JUYAL (<i>Alternate</i>)	
SHRI S. K. MATHUR, Director (Chem)	Director General, ISI (<i>Ex-officio Member</i>)
	<i>Secretary</i>
	SHRI P. S. ARORA Senior Deputy Director (Chem), ISI

Oils and Fats Subcommittee, CAFDC 5 : 1

<i>Convener</i>	
DR G. LAKSHMINARAYANA	Regional Research Laboratory (CSIR), Hyderabad
<i>Members</i>	
AGRICULTURAL MARKETING ADVISER TO THE GOVERNMENT OF INDIA	Directorate of Marketing and Inspection, Nagpur
SHRI T. V. MATHEW (<i>Alternate</i>)	

(Continued on page 8)

Indian Standard
SPECIFICATION FOR
RICE BRAN OIL
(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 15 September 1984, after the draft finalized by the Oils and Oilseeds Sectional Committee had been approved by the Chemical Division Council and the Agricultural and Food Products Division Council.

0.2 This standard was originally issued in 1965 and it covered rice bran oil intended for the industrial non-edible use corresponding to the present Raw Grade 2. In the first revision, the standard was amalgamated with IS : 4219 E-1967* which covered edible grades of rice bran oil. In this revision, the limit for unsaponifiable matter for refined Grade 1 is being changed from 3.0 to 3.5 and a method is being incorporated to test the presence of mineral oil.

0.3 Although India is one of the major rice producing countries of the world, the utilization of rice bran for extracting oil in India is of very recent origin. One of the chief technical handicaps in the development of the industry is the presence of a lipolytic enzyme in the bran which acts immediately after the bran is separated from rice and produces free fatty acids very rapidly, if the bran is stored for a long period and under improper conditions. At present, most of the bran available for extraction is neither freshly milled nor lipase-inactivated; and consequently, the free fatty acid content of extracted oil is invariably high. Further, the colour of the oil is dark and the taste disagreeable. Hence, unlike several other indigenous vegetable oils, rice bran oil cannot be consumed for edible purposes directly without refining. The raw oil is used mainly in the manufacture of soaps and fatty acids and for edible purposes after refining.

0.4 Rice bran oil contains a wax in varying quantities depending upon the time allowed for settling. The limit for wax content may be

*Specification for rice bran oil, edible grades.

considered later for being prescribed in the standard as it has a bearing on the quality of the oil.

0.5 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 oil.

2. TERMINOLOGY

2.1 For the purpose of this standard, the following definition in addition to those given under 2 of IS : 548 (Part 1)-1964†, shall apply.

2.1.1 *Refined Rice Bran Oil* — Rice bran oil which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon, or both, and deodorized with steam, no other chemical agent except for citric and phosphoric acids and salt being used.

3. GRADES

3.1 The material shall be of the following three grades:

- a) Refined Grade,
- b) Raw Grade 1, and
- c) Raw Grade 2.

3.1.1 The material of Refined Grade is suitable for edible purposes.

3.1.2 The material of Raw Grade 1 is suitable for making *vanaspati* and refined oil and not for direct human consumption.

3.1.3 The material of Raw Grade 2 is suitable for industrial purposes.

4. REQUIREMENTS

4.1 **Description** — Rice bran oil shall be obtained from the layer around the endosperm of rice obtained from paddy of *Oryza sativa* Linn., fam. Gramineae, which is removed during the process of rice milling and is generally known as rice bran.

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

†Methods of sampling and test for oils and fats: Part I Sampling, physical and chemical tests (*revised*).

4.1.1 Solvent hexane used for the extraction of the oleaginous material shall conform to IS : 3470-1966*.

4.2 The refined rice bran oil shall be obtained from the solvent-extracted oil, neutralized with alkali, bleached with bleaching earth or activated carbon or both and deodorized with steam or by the other approved refining method.

4.3 The material shall be clear and free from rancidity, adulterants, sediment, suspended and other foreign matter, separated water and added colouring and flavouring substance.

4.3.1 The clarity of the material shall be judged by the absence of turbidity after heating the sample to 50°C and filtering the sample through a filter paper and maintaining the filtered sample at 35°C for 24 hours.

4.4 Admixture with Other Oils -- The material shall be free from admixture with other oils, when tested according to the methods prescribed in IS : 548 (Part 2)-1976†. The material shall be free from mineral oil when tested in accordance with 12 of IS : 548 (Part 2)-1976†.

4.5 The material shall also comply with the requirements given in Table 1.

5. PACKING

5.1 The material shall be supplied in suitably sealed and well-closed containers, as agreed to between the purchaser and the supplier.

6. MARKING

6.1 The containers shall be marked with the name, grade and the net mass of the material in the container; manufacturer's name and trade-mark, if any; batch number, month and the year of manufacture.

6.2 In addition, in the case of Raw Grades 1 and 2 of the material, container shall also be marked either by printing on the label affixed to the containers, or by lithographing or stencilling thereon with indelible ink in a type size of not less than 50 mm, as follows:

Raw Grade 1 — 'NOT FOR DIRECT EDIBLE CONSUMPTION',
and

Raw Grade 2 — 'FOR INDUSTRIAL USES'.

*Specification for hexane, food grade.

†Methods of sampling and test for oils and fats: Part 2 Purity tests (third revision).

TABLE 1 REQUIREMENTS FOR RICE BRAN OIL

(Clauses 4.5 and 8.1)

SL No.	CHARACTERISTIC	REQUIREMENT FOR			METHOD OF TEST, REF TO CL No.
		Refined Grade	Raw Grade 1	Raw Grade 2	
(1)	(2)	(3)	(4)	(5)	(6)
	i) Moisture and insoluble impurities, percent by mass, <i>Max</i>	0.10	0.5	1.0	5 and 6
	ii) Colour in a 1-in cell on the Lovibond scale expressed as <i>Y</i> + 5 <i>R</i> , not deeper than	20 (No dominant green colour)	—	—	13
6	iii) Refractive index at 40°C	1.460 0 to 1.470 0	1.460 0 to 1.470 0	1.460 0 to 1.470 0	10
	iv) Specific gravity at 30°/30°C	0.910 to 0.920	0.910 to 0.920	0.910 to 0.920	11
	v) Saponification value	180 to 195	175 to 195	175 to 195	15
	vi) Iodine value (Wij's)	90 to 105	85 to 105	85 to 105	14
	vii) Acid value	0.5, <i>Max</i>	20, <i>Max</i>	Above 20	7
	viii) Unsaponifiable matter, percent by mass, <i>Max</i>	3.5	6.0	6.0	8
	ix) Flash point, Pensky-Martens (closed), °C, <i>Min</i>	250	100	90	P : 21 (1970) of IS : 1448†

of IS : 548
(Part 1)-1964*

* Methods of sampling and test for oils and fats: Part 1 Sampling, physical and chemical tests (*revised*).

† Methods of test for petroleum and its products: [P : 21] Flash point (closed) by Pensky-Martens apparatus (*first revision*).

7. SAMPLING

7.1 Representative samples of the material shall be drawn as prescribed under 3 of IS : 548 (Part 1)-1964*.

8. TEST METHODS

8.1 Tests shall be carried out according to the methods prescribed in IS : 548 (Part 1)-1964* and IS : 1448 [P : 21]-1970†. Reference to these is given in col 6 of Table 1.

8.2 **Quality of Reagents** — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977‡) shall be used in tests.

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

*Methods of sampling and test for oils and fats: Part 1 Sampling, physical and chemical tests (*revised*).

†Methods of test for petroleum and its products [P : 21] Flash point (closed) by Pensky-Martens apparatus (*first revision*).

‡Specification for water for general laboratory use (*second revision*).

(Continued from page 2)

<i>Members</i>	<i>Representing</i>
SHRI J. A. ASHTAPUTRE	Ministry of Defence (DGI)
SHRI P. K. MAJUMDAR (<i>Alternate</i>)	
ASSISTANT DIRECTOR (AORI ENGG)	Indian Council of Agricultural Research Institute, New Delhi
SHRI V. K. BANBAL	Central Organization for Oil Industry and Trade, Bombay
SHRI H. P. GUPTA (<i>Alternate</i>)	
DR N. V. BRINGI	Hindustan Lever Ltd, Bombay
DR V. V. S. MANI (<i>Alternate</i>)	
SHRI D. S. CHADHA	Central Committee for Food Standards (Ministry of Health and Family Welfare), New Delhi
SHRIMATI DEBI MUKHERJEE (<i>Alternate</i>)	
SHRI R. D. KAWATRA	Directorate General of Technical Development, New Delhi.
SHRI V. LAKSHMIKANTHAN	Khadi and Village Industries Commission, Bombay
SHRI V. K. B. NAIR (<i>Alternate</i>)	
SHRI R. K. MARPHATIA	Indian Paint Association, Calcutta
SHRI RABIN SARKAR (<i>Alternate</i>)	
SHRI R. K. MATHUR	Vanaspati Manufacturers' Association of India, Bombay
SHRI G. K. SOOD (<i>Alternate</i>)	
DR N. L. MURTY	Tata Oil Mills Co Ltd, Bombay
DR A. D. SHITOLE (<i>Alternate</i>)	
DR S. M. PATEL	Oil Technologists' Association of India, Kanpur
PROF V. V. R. SUBRAHMANYAM (<i>Alternate</i>)	
DR J. V. PRABHAKAR	Central Food Technological Research Institute (CSIR), Mysore
SHRI R. D. SHENOI	Indian Confectionery Manufacturers' Association, New Delhi
DR I. S. SHENOLIKAR	Indian Council of Medical Research, New Delhi
DR RAMESH BHATT (<i>Alternate</i>)	
DR I. A. SIDDIQUI	Directorate of Vanaspati, Vegetable Oils and Fats (Ministry of Civil Supplies), New Delhi
DR R. A. KHAN (<i>Alternate</i>)	
SHRI M. S. THAKUR	Indian Soap and Toiletries Makers' Association, Bombay; and Godrej Soaps Ltd, Bombay
SHRI S. D. THIRUMALA RAO	Oil Technological Research Institute, Anantapur
SHRI D. ATCHYUTA RAMAYYA (<i>Alternate</i>)	
SHRI M. D. WASNIK	Directorate of Oilseeds Development, Hyderabad
SHRI S. P. JUYAL (<i>Alternate</i>)	

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha

(Common to all Offices)

Telephone

Central Laboratory:

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

8-77 0032

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),
MUMBAI 400093 832 92 95

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No. 29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P.O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square,
BANGALORE 560002 222 39 71

AMENDMENT NO. 1 JULY 1989
TO
IS : 3448 - 1984 SPECIFICATION FOR
RICE BRAN OIL

(Second Revision)

(Page 4, clause 2.1.1) — Substitute the following for the existing clause:

‘2.1.1 Refined Rice Bran Oil — Refined rice bran oil means oil which is obtained by expression or solvent extraction of rice bran oil bearing materials, deacidified either with alkali or physical refining or by miscella refining by bleaching with adsorbent earth and/or carbon and deodorized with steam.’

(Page 5, clause 4.4) — Substitute the following for the existing clause:

‘4.4 Admixture with Other Oils — The material shall be free from admixture of other oils.

4.4.1 The material shall be free from non-edible oils when tested according to 9, 10, 11, 12, 14, 15 and 16 of IS : 548 (Part 2) - 1976*.’

(Page 5, clause 6.2) — Add the following new clause after 6.2:

‘6.2.1 The containers 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 processors may be obtained from the Bureau of Indian Standards.’

*Methods of sampling and test for oils and fats: Part 2 Purity test.

AMENDMENT NO. 2 SEPTEMBER 1995
TO
IS 3448 : 1984 SPECIFICATION FOR RICE BRAN OIL
(Second Revision)

(Page 4, Foreword, clause 0.4) — Add the following clause 0.5 after clause 0.4 and renumber the subsequent clause:

'0.5 A scheme for labelling environment friendly products to be known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF). The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolution No. 71 dated 20 February 1991 as published in the Gazette of the Government of India vide GSR 85(E) dated 21 February 1991. For a product to be eligible for marking with the ECO Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements. The EF requirements for rice bran oil are therefore being included through an amendment.

This amendment is based on the Gazette Notification No. 678 dated 30 August 1994 for Labelling Edible Oils, Tea and Coffee as environment friendly products, published by the Ministry of Environment and Forests.'

(Page 5, clause 4.5) — Add the following clauses after clause 4.5:

4.6 Optional Requirements for ECO Mark

4.6.1 General Requirements

4.6.1.1 The product shall conform to the requirements of quality prescribed under clauses 4.1 to 4.5.

4.6.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the norms laid down under the Water (*Prevention and Control of Pollution*) Act, 1974; Air (*Prevention and Control of Pollution*) Act, 1981; Water (*Prevention and Control of Pollution*) Cess Act, 1977, respectively, along with the authorization, if required under the *Environment (Protection) Act*, 1986, while applying for ECO Mark.

4.6.2 Specific Requirements

4.6.2.1 The product shall not contain aflatoxin, more than 5 mg/kg, when tested by the method prescribed in Appendix A.

4.6.2.2 The pesticide residues, if any, shall not exceed the tolerance limits as prescribed in the *Prevention of Food Adulteration Act, 1954* and *Rules* made thereunder.

4.6.2.3 Only permitted antioxidants not exceeding the quantities specified against each as prescribed under the *Prevention of Food Adulteration Act, 1954* and *Rules* made thereunder, shall be used, if required.

4.6.2.4 The product shall not contain any of the toxic metals in excess of the quantities prescribed in Table 2.

TABLE 2 LIMITS FOR TOXIC METALS

SL. NO.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
i)	Lead, mg/kg, <i>Max</i>	5.0	15 of IS 1699 : 1995*
ii)	Arsenic, mg/kg, <i>Max</i>	0.5	do
iii)	Cadmium, mg/kg, <i>Max</i>	1.0	do
iv)	Mercury (total) mg/kg, <i>Max</i>	0.25	do

*Methods of sampling and test for food colours (*second revision*).

(Page 5, clause 5.1) — Add the following clause 5.1.1 after clause 5.1:

‘5.1.1 For ECO Mark the product shall be packed in such packages which are made from recyclable (that is which can be re-processed to manufacture any useful product) or biodegradable materials.’

[Page 5, clause 6.2 (see also Amendment No. 1)] — Add the following clause 6.3 after clause 6.2:

‘6.3 For ECO Mark, the containers shall be marked with the following information:

- a) List of identified critical ingredients in descending order of quantity, percent by mass, which shall include ‘made from rice bran oil’;
- b) The brief criteria for which the product has been labelled for ECO Mark; and
- c) Shelf life of the product.’

(Page 7, clause 8.2) — Add the following Appendix after clause 8.2:

'APPENDIX A
(Clause 4.6.2.1)

DETERMINATION OF AFLATOXIN

A-1 REAGENTS

A-1.1 Acetone, 70 Percent — 700 ml acetone in 300 ml distilled water.

A-1.2 Acetone, 20 Percent — 200 ml acetone in 800 ml distilled water.

A-1.3 Lead Acetate, 20 Percent — 200 g neutral acetate in distilled water and 3 ml glacial acetic acid, diluted to one litre.

A-2 PROCEDURE

A-2.1 Dissolve 30 g sample in 100 ml hexane.

A-2.2 Extract with 3 × 50 ml 70 percent acetone.

A-2.3 To the extract add 60 ml distilled water and 20 ml lead acetate.

A-2.4 Boil to reduce volume to 150 ml. Cool to about 20°C.

A-2.5 Filter and wash with 20 percent acetone.

A-2.6 Extract filtrate and washings with 3 × 50 ml chloroform.

A-2.7 Pass chloroform layer through anhydrous sodium sulphate.

A-2.8 Concentrate to 50 ml and spot on TLC plate.

A-3 CALCULATION

$$\text{Aflatoxin, mg/kg} = \frac{V \times s \times 1\,000}{v \times m}$$

where

V = volume of extract in ml,

v = volume of extract giving minimum observable fluorescence in μl ,

m = mass of sample in g, and

s = standard toxin giving minimum observable fluorescence in μg .'

(FAD 44)

AMENDMENT NO. 3 MARCH 2002
TO
IS 3448 : 1984 SPECIFICATION FOR RICE BRAN OIL
(*Second Revision*)

(*Amendment No. 2, page 2, clause 4.6.2.1*) — Substitute '5 µg/kg' for '5 mg/kg'.

(FAD 44)

Reprography Unit, BIS, New Delhi, India