IS : 9955 - 1981

Indian Standard

SPECIFICATION FOR RUBBER SEED OIL

UDC 665·335·44

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

March 1982

IS : 9955 - 1981

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(*Continued on page* 2)

(*Continued from page* 1)

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(*Continued on page* 7)

Indian Standard
SPECIFICATION FOR RUBBER SEED OIL

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 October 1981, 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 Rubber seed oil is obtained from seed kernels or rubber tree (*Hevea brasiliensis* Muell. Arg.). Rubber tree is grown as a regular plantation crop in about 2 lakh hectares in Kerala alone. Plantations are also raised in Tamil Nadu, Karnataka and Andaman Islands. The fruit contains three seeds. Rubber seed resembles castor seed but is bigger in size. The estimated availability of rubber seeds is about 30000 tonnes per annum and that of rubber seed oil, about 5000 tonnes per annum. However, the present availability of rubber seed oil is about 3500 tonnes per annum.

0.3 Rubber seed kernels contain 38 to 52 percent of a yellow to brown oil with a characteristic painty odour.

0.4 Linoleic acid (30 to 40 percent), linolenic acid (20 to 24 percent), and oleic acid (17 to 30 percent) are the major unsaturated fatty acids present in rubber seed oil. Palmitic acid (10 to 24 percent) and stearic acid (9 to 12 percent) are the major saturated fatty acids present. It is at present being used in soap-making, and is a partial substitute for linseed oil in surface coatings. Rubber seed oil is reported to be effective as a repellent for houseflies and lice. Hot rubber seed oil may also be used as a massaging oil for painful joints of cattle and horses. In view of its high poly-unsaturated fatty acids content, rubber seed oil can be used in the preparation of afridi wax and linoleums.

0.5 This standard contains clause **5.1** which calls for agreement between the purchaser and the supplier.

0.6 In the preparation of this standard, assistance has been derived from data supplied by Oil Technological Research Institute, Anantapur, Directorate of Oilseeds Development, Hyderabad and Oil Technologists Association of India which is thankfully acknowledged.

0.7 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.

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1. SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for rubber seed oil.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given under **2** of IS : 548 (Part I)-1964† shall apply.

3. TYPES

3.1 The material shall be of the following two types, depending on the process by which it is obtained:

a) Expressed, and

b) Solvent-extracted.

4. REQUIREMENTS

4.1 The material shall be obtained from clean and sound seed kernels of rubber tree (*Hevea brasiliensis* Muell. Arg.) by the process of expression or from cake or seed kernels by a process of solvent extraction. It shall be clear and free from adulterants, sediments, suspended and other foreign matter and separated water.

4.1.1 Solvent-extracted oil shall be obtained from the seed kernels using solvent hexane conforming to IS : 3470-1966‡.

4.2 The clarity of the material shall be judged by the absence of any turbidity after keeping the filtered sample at 40°C for 24 h.

4.3 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 II)-1976§.

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

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

‡Specification for hexane, food grade.

§Methods of sampling and test for oils and fats: Part II Purity tests (*third revision*).

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

TABLE 1 REQUIREMENTS FOR RUBBER SEED OIL

(*Clauses* 4.4 *and* 8.1)

Sl No.	Characteristic	Requirement for Type		Method of Test, Ref to Cl No. in
		Expressed Type	Solvent Expressed Type	
(1)	(2)	(3)	(4)	(5)
i)	Moisture and volatile matter, percent by mass, *Max*	0·5	1·0	5 of IS:548 (Part I)-1964*
ii)	Refractive index at 40°C	← 1·4600 to	1·4700 →	10 of IS:548 (Part I)-1964*
iii)	Acid value, *Max*	10	20	7 of IS:548 (Part I)-1964*
iv)	Iodine value (Wijs)	← 130 to	145 →	14 of IS:548 (Part I)-1964*
v)	Saponification value	← 180 to	195 →	15 of IS:548 (Part I)-1964*
vi)	Unsaponifiable matter, percent by mass, *Max*	1·0	1·0	8 of IS:548 (Part I)-1964*
vii)	Flash point, Pensky-Martens (closed), °C, *Min*	—	100	P:21 of IS:1448-1970†

*Methods of sampling and test for oils and fats: Part I 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*).

5. PACKING

5.1 The material shall be packed in suitable, well closed containers as agreed to between the purchaser and the supplier.

6. MARKING

6.1 The containers shall be marked with the following particulars:

a) Name and type of the material;

b) Net mass of the material;

c) Manufacturer's name and his recognized trade-mark, if any;

d) Batch number or lot number in code or otherwise; and

e) Month and year of manufacture.

6.1.1 The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI 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 ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6.2 In addition, the following information shall be suitably marked either printed on the label affixed to the container or lithographed or stencilled thereon with indelible ink, in a type size not less than 50 mm.

'FOR INDUSTRIAL NON-EDIBLE USES ONLY'

7. SAMPLING

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

7.2 Number of Tests — Tests for determination of all the characteristics given in Table 1 and **4.1** shall be conducted on the composite sample.

7.3 Criteria for Conformity — The lot shall be declared as conforming to this specification if all the characteristics tested on composite sample satisfy the corresponding requirements given in the specification.

8. TEST METHODS

8.1 Tests shall be carried out as prescribed in IS : 548 (Part I)-1964*, IS : 548 (Part II)-1976† and IS : 1448 (P : 21)-1970‡. Reference to the relevant clauses of IS : 548 (Part I)-1964* and IS : 1448 (P : 21)-1970‡, is given in col 5 of Table 1 and that of IS : 548 (Part II)-1976† in **4.3.**

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.

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

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

‡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)

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INDIAN STANDARDS
ON
OILS AND ALLIED PRODUCTS

IS:

75-1973 Linseed oil, raw and refined (*second revision*)
435-1973 Castor oil (*second revision*)
542-1968 Coconut oil (*second revision*)
543-1968 Cottonseed oil (*second revision*)
544-1968 Groundnut oil (*second revision*)
545-1968 *MAHUA* oil (*second revision*)
546-1975 Mustard oil (*second revision*)
547-1968 Sesame oil (*second revision*)
548 (Part I)-1964 Methods of sampling and test for oils and fats: Part I Methods of sampling, physical and chemical tests (*revised*)
548 (Part II)-1976 Methods of sampling and test for oils and fats: Part II Purity test (*third revision*)
548 (Part III)-1976 Methods of sampling and test for oils and fats: Part III Analysis by gas liquid chromatography
595-1954 Blown rape (or mustard) oil for use in lubricants
887-1977 Animal tallow (*second revision*)
1035-1972 Methods of sampling and test for bleaching earths (*second revision*)
1675-1971 Stearic acid, technical (*first revision*)
1676-1960 Oleic acid, technical
1780-1961 Vegetable tallow
1965-1972 Bleaching earth of Indian origin used for decolorizing vegetable oils (*first revision*)
3448-1968 Rice bran oil (*first revision*)
3490-1965 Nigerseed oil
3491-1965 Safflower oil
3492-1965 *KARANJA* oil
3579-1966 Methods of test for oilseeds
4054-1966 Neatsfoot oil
4055-1966 Maize (corn) oil
4056-1966 Fish oil for leather industry
4088-1966 *KUSUM* oil
4115-1967 Methods of sampling of oilseeds
4276-1977 Soybeen oil (*first revision*)
4277-1975 Sunflower oil (*first revision*)
4765-1975 *NEEM* kernel oil and depulped *NEEM* seed oil (*first revision*)
5614-1970 Tobaccoseed oil
5637-1970 Watermelon seed oil
5638-1970 Acid oil (cottonseed and groundnut)
7375-1979 Salseed fat (*first revision*)
8323-1977 Pam oil
8361-1977 Palmolein
8591-1977 *KOKUM* fat
9231-1979 Mango kernel fat
9232-1979 Ambadi oil
9586-1980 Silk-worm pupae oil
9587-1980 *Tamarine kernel oil*
9616-1980 Spent coffee grounds fat