उत्पाद मानुयल

नारियल का तेल आई एस 542 : 2018 के अनुसार

PRODUCT MANUAL FOR COCONUT OIL ACCORDING TO IS 542 : 2018

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप मे उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	**उत्पाद** **Product**	:	IS 542 : 2018
	शीर्षक **Title**	:	नारियल का तेल- विशिष्टि Coconut Oil - Specification
	संशोधन संख्या **No. of Amendments**	:	Nil
2.	**नमुनाकरण दिशा निर्देश** **Sampling Guidelines:**		
a)	**कच्चा माल** **Raw material**	:	Hexane conforming to IS 3470 (For Solvent extracted Type, Refined Grade)
b)	**समूहिकरण दिशा निर्देश** **Grouping guidelines**	:	NA
c)	**नमूने का परिमाण** **Sample Size**	:	1 litre
3.	**परीक्षण उपकरणो की सूची** **List of Test Equipment**	:	कृपया Annex-A देखें Please refer ANNEX – A
4.	**निरीक्षण व परीक्षण स्कीम** **Scheme of Inspection and Testing**	:	कृपया Annex-B देखें Please refer ANNEX – B

5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day:**	
	i. Description ii. Colour iii. Refractive Index iv. Specific Gravity v. Saponification Value vi. Iodine Value vii. Acid Value and viii. Unsaponifiable matter	
6.	**लाइसेन्स का कार्यक्षेत्र / Scope of the Licence:**	
	''IS 542 : 2018 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है'' "Licence is granted to use Standard Mark as per IS 542 : 2018 with the following scope:	
	उत्पाद का नाम Name of the product	नारियल का तेल Coconut Oil
	प्रकार / ग्रेड Type/Grade	a) Expressed Type – Refined grade and/ Raw Grade I and/ Raw Grade II and/or b) Solvent Extracted Type – Refined grade and/ Raw Grade

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ANNEX A
TO PRODUCT MANUAL FOR COCONUT OIL SPECIFICATION ACCORDING TO IS 542 : 2018

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference		Test Equipment/ Chemicals Used
	Test	**Clause**	
1.	Clarity of Oil	Cl 5.2.1	a) Any Instrument capable of maintaining 30 deg Celcius for 24 hours b) Glass Beaker (100 ml)
2.	Moisture and Insoluble Impurities, *Max*	Cl 5.7 Table 1 (i)	**Air Oven method:** a) Hot Air Oven (temp controlled) b) Moisture Dish with cover c) Desiccator d) Analytical Weighing balance (L.C.0.0001g) **Hot Plate Method:** a) Glass beaker b) Small glass rod c) Desiccator with desiccant d) Electrical hot plate e) Analytical Weighing balance (L.C.0.0001g) **Distillation method:** a) Glass flask with reflux condenser b) Heat source c) Copper wire d) Potassium dichromate-sulphuric acid cleaning solution e) Xylene or toluene f) Analytical Weighing balance (L.C.0.0001g) **Karl Fischer Method (Pyridine free):** a) Karl Fischer apparatus b) Karl Fischer reagents c) Water d) Analytical Weighing balance (L.C.0.0001g)
4.	Colour, Lovibond scale, expressed as (Y + 5R), not deeper than	Cl 5.7 Table 1 (ii)	a) Lovibond Tintometer b) Lovibond Glass Cells, 25 mm c) Filter paper d) Chloroform e) Eyepiece
5.	Refractive Index, at 40^0C	Cl 5.7 Table 1 (iii)	a) Abbe or Butyro refractometer b) Light Source c) Filter Paper

			d) Distilled Water e) Temp. controlled Water-bath (± 0.1°C) f) Motor-driven pump
6.	Specific Gravity, at 30^0C	Cl 5.7 Table 1 (iv)	a) Pyknometer b) Water Bath (temp controlled – 30 ± 2.0°C) c) Thermometer (L.C-0.1 deg Celcius)
7.	Saponification Value, *Min*	Cl 5.7 Table 1 (v)	a) Analytical balance (L.C.0.0001g) b) Water-Bath/Electrical hot plate with Rheostat control c) Reflux Condenser d) Conical Flasks, 250 ml e) Burette, 50 ml f) Glass Stoppered flask, 1000 ml\ g) Pipette, 25 ml h) Rectified Spirit i) Phenolphthalein Indicator j) Hydrochloric Acid
8.	Iodine value (Wijs)	Cl 5.7 Table 1 (vi)	a) Analytical balance (L.C.0.0001g) b) Iodine Flask, 250 or 500 ml c) Pipette, 10 ml and 25 ml d) Burette, 50 ml e) Measuring Cylinder, 50 ml and 100 ml f) Potassium Dichromate g) Potassium Iodide h) Concentrated Hydrochloric Acid i) Starch Powder j) Mercuric Iodide k) Sodium Thiosulphate l) Iodine Crystals m) Acetic Acid, glacial n) Chlorine Gas (dry) o) Iodine Trichloride p) Iodine Monochloride q) Chloroform
9.	Acid value, *Max*	Cl 5.7 Table 1 (vii)	a) Analytical balance (L.C.0.0001g) b) Conical flask, 200 ml c) Ethyl Alcohol d) Phenolphthalein Indicator e) Sodium Hydroxide
10.	Unsaponifiable matter, percent by mass, *Max*	Cl 5.7 Table 1 (viii)	a) Analytical balance (L.C.0.0001g) b) Conical Flask, 250 ml c) Separating Funnels, 500 ml d) Potassium Hydroxide e) Ethyl Alcohol f) Phenolphthalein Indicator g) Petroleum Ether h) Sodium Hydroxide i) Acetone
11.	Polenske value, *Min*		a) Condenser b) Receiver c) Asbestos Board d) Bunsen Burner

		Cl 5.7 Table 1 (ix)	e) Still-Head f) Flat Bottom Boiling Flask g) Glycerine h) Pumice Stone Grains i) Dilute Sulphuric Acid j) Sodium Hydroxide Solution k) Phenolphthalein Indicator l) Ethyl-Alcohol, 90 percent
12.	Flash point (Pensky-Martens), closed, °C, *Min*	Cl 5.7 Table 1 (x)	a) Cleaning solvent b) Flash point apparatus c) Temperature measuring devices d) Barometer e) Water Bath or Heating Oven (temp controlled)
13.	Hexane, ppm, *Max*	Cl 5.7 Table 1 (xi)	a) Gas Chromatograph b) Electronic Integrator c) Chromatographic Column d) Syringe — 1 ml, 10 m1, 1 000 ml capacity e) Septum Vial — 20 ml capacity f) Septa and Aluminium Caps with Crimping Pliers g) Tongs h) Shaking Machine i) Heating Bath (Temp. Controlled)

The above list is indicative only and may not be treated as exhaustive.

ANNEX B
TO PRODUCT MANUAL FOR COCONUT OIL ACCORDING TO IS 542 : 2018

SCHEME OF INSPECTION AND TESTING

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING — The Standard Mark, as given in the Schedule of the licence, shall be marked on the containers, provided always that material so marked conform to requirements of the specification.

3.1 Packing – Tin or plastic containers once used, shall not be re-used for packaging of edible oils and fats.

3.1.1 Containers made of plastic materials shall be as per IS 10142 or IS 10146 or IS 10151 or IS 10910 or IS 11434 or IS 11704 or IS 12247 or IS 12252 or IS 13601 or IS 13576.

3.1.2. Containers made of tin shall be as per IS 10325 or IS 10339.

3.1.3 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.

3.1.4 Types and grade not suitable for direct edible consumption shall not be packed in consumer packs.

3.2 Marking – The containers shall be marked with the information provided under clause 7.1 and 7.2 of IS 542.

3.2.1 In addition in the case of the types and grades which are not suitable for direct edible consumption (see Note-5 under Table 1 of SIT), the following information shall be suitably marked, either printed on the label affixed to the container or lithographed or stenciled thereon with indelible ink, in a type size of not less than 50 mm:

'NOT FOR DIRECT EDIBLE CONSUMPTION'

3.2.2 The package, label or the advertisement of edible oils and fats shall not use the expressions 'Super-Refined', 'Extra-Refined', 'Micro-Refined', 'Double-Refined', 'Ultra-Refined', 'Anti-Cholesterol', 'Cholesterol Fighter', 'Soothing to Heart', 'Cholesterol Friendly', 'Saturated Fat Free' or such other expressions which are an exaggeration of the quality of the product. In addition, the following shall be incorporated on each container:

i) Shelf life of the product;
ii) BIS Licence Number CM/L .. and
ii) BIS website details i.e. "For details of BIS certification please visit **www.bis.gov.in**".

3.2.3 In addition to the above marking requirements, for ECO-Mark the containers shall also be marked as per clause 7.5 and 7.7 of IS 542.

4. CONTROL UNIT – For the purpose of this scheme, the entire quantity of Coconut Oil of same type and grade produced in one day shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. RAW MATERIAL – The material shall be obtained from good quality coconut cake by the process of solvent extraction or from clean and sound copra obtained from the kernel of Cocos nucifera Linn. Fam. Palmae, by a process of expression.

Solvent extracted type coconut oil shall be obtained from the oleaginous material using solvent hexane conforming to IS 3470.

Only permitted antioxidants and antioxidant synergists not exceeding the quantities specified against each as prescribed under the Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011, may be used, if required.

7. REJECTIONS – Disposal of non-conforming product shall be done in such a way to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl	**Requirement**	**Test Method Cl. Ref.**	**Test Method IS**		**No. of Sample**	**Frequency**	**Remarks**
5.1 & 5.1.1	Description	5.1 & 5.1.1	IS 542	To be declared by the firm			Hexane shall conform to IS 3470 (For Solvent extracted Type). If a manufacturer is not making solvent extracted type, a declaration in this regard shall be obtained from such a manufacturer.
5.2	Freedom from rancidity, adulterants, sediment, suspended and other foreign matter, separated water and added colouring and flavouring substances	5.2	IS 542	R	One	Each Control Unit	
5.2.1	Clarity of Oil	5.2.1	IS 542	R	One	Each Control Unit	Visual
5.7 Table 1 (i)	Moisture and Insoluble Impurities	6 & 7	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(ii)	Colour, Lovibond scale,	14	IS 548 (Part 1/ Sec 2)	R	One	Each Control Unit	-
(iii)	Refractive Index, at 40^0C	11	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(iv)	Specific Gravity, at 30^0C	12	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(v)	Saponification Value	16	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-

(vi)	Iodine value (Wijs)	15	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(vii)	Acid value	8	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(viii)	Unsaponifiable matter	9	IS 548 (Part 1/Sec 2)	R	One	Each Control Unit	-
(ix)	Polenske value	20	IS 548 (Part 1/Sec 2)	S	One	Once in a month	-
(x)	Flash point (Pensky-Martens), closed	-	IS 1448 (Part 21)	S	One	Once in a month	-
(xi)	Hexane, ppm, *Max*	Annex-B	IS 542	S	One	Once in a month	-
Cl 5.3	**Adulterants**						
-do-	Karanja Oil	9	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Argemone Oil	10	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Hydrocyanic Oil	11	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Mineral Oil	12	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Kusum Oil	14	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Castor Oil	15	IS 548 Part 2	S	One	Once in Six Months	-
-do-	Neem Oil	16	IS 548 Part 2	S	One	Once in Six Months	-
Cl 5.4	Aflatoxin	Annex A	IS 542 : 2018 or IS ISO 14718	S	One	Once in Six Months	-
Cl 5.5	**# Metal Contaminants**					Once in Six Months	-
-do-	Lead	-	-	S	One	Once in Six Months	-
-do-	Copper	-	-	S	One	Once in Six Months	-
-do-	Arsenic	-	-	S	One	Once in Six Months	-

-do-	Tin	-	-	S	One	Once in Six Months	-
-do-	Cadmium	-	-	S	One	Once in Six Months	-
-do-	Mercury	-	-	S	One	Once in Six Months	-
-do-	Methyl Mercury	-	-	S	One	Once in Six Months	-
Cl 5.5	**# Pesticide Residues**						
-do-	Phenthoate	-	-	S	One	Once in a year	-
-do-	Trichlorfon	-	-	S	One	Once in a year	-
-do-	Phorate	-	-	S	One	Once in a year	-
Cl 5.6	**Antioxidants**	-	-	S	One	Once in a year	Test methods given in FSSAI Regulations/FSSAI Manual on Food Additives may be used.
-do-	Propyl gallate	-	-	S	One	Once in a year	-
-do-	BHA (Butylated Hydroxyl Anisole).	-	-	S	One	Once in a year	-
-do-	Ascorbyl Palmitate.	-	-	S	One	Once in a year	-
-do-	TBHQ (Tertiary Butyl Hydroxy Quinone)	-	-	S	One	Once in a year	-
-do-	Resin Guaiac	-	-	S	One	Once in a year	-
-do-	BHT (Butrylated Hydroxy Toluene)	-	-	S	One	Once in a year	-

Note-1: Whether test equipment is required, or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval to BO head.

Note-3: In addition to the requirements under Cl 5.1 to 5.7 of IS 542, for ECO-Mark, manufacturer shall ensure conformity to Cl. 5.8.1.1, 5.8.1.2 and 5.8.1.3 & Table 2 of IS 542. Levels of control for the additional requirements of ECO-Mark shall be specified when an application is received for ECO-Mark.

Note-4: The refined grade of expressed and solvent extracted types and Raw Grade I and Raw Grade II of the expressed type are suitable for direct edible consumption.

Note-5: Raw grade of the solvent-extracted type is suitable for making refined oil and Vanaspati and not for direct edible consumption.

Approved international standard test methods from ISO shall be followed.