



उत्पाद मैनुअल

सामान्य उपभोक्ता उत्पादों के पैकेजिंग में उपयोग हेतु
लेपित मुड़ने वाला बॉक्स बोर्ड — विशिष्ट

**PRODUCT MANUAL FOR
COATED FOLDING BOX BOARD FOR
GENERAL CONSUMER PRODUCT
PACKAGING – SPECIFICATION ACCORDING TO IS 16984: 2024**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.

1.	मानक संख्या IS No.	:	IS 16984: 2024
	शीर्षक Title	:	Coated Folding Box Board for General Consumer Product Packaging
	संशोधनों की संख्या No. of Amendments	:	01
2.	Sampling Guidelines:		
a)	कच्चा माल Raw material	:	No specific requirement Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of License/Factory Surveillance
b)	समूहीकरण दिशानिर्देश Grouping guidelines	:	Please refer <u>ANNEX - A</u>
c)	नमूने का परिमाण Sample Size	:	50 Sheets + 10 Printed sheets (for Print Resistance and Ink Adhesion of printed cartons Cl 5.6, if applicable) + Top Coating sheets (before and after coating) and Bottom Coating sheet (before and after coating) for grammage as per Cl 4(a), 4(e)

		Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	1. Grammage (gsm) 2. Specific Requirement for items in food contact 3. Optional requirements (as per table 3) 4. Thickness 5. Sizes 6. Bulk, Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer <u>ANNEX – B</u>
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer <u>ANNEX – C</u>
5.	एक दिन में संभावित परीक्षण Possible tests in a day	: All tests specified in Table 1 of IS 16984 with prior conditioning. Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.
6.	लाइसेंस का कार्यक्षेत्र Scope of the Licence:	
	IS 16984: 2024 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है। “Licence is granted to use Standard Mark on product as per IS 16984: 2024 with the following scope”	
	उत्पाद का नाम Name of the Product	Coated Folding Box Board For General Consumer Product
	Nominal Grammage (gsm)	200, 250, 300, 350, 400, etc.
	Specific Requirement for items in food contact	With/without
	Optional requirements (as per table 3)	Without/ with the Optional Requirements of surface ph, burst factor,... etc. (mention the optional parameter tested as per Table 3)

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Annex - A
Grouping Guidelines

1. Coated Folding Box Board for General Consumer Product Packaging is classified as per IS 16984 as below:
 - a) Grammage (gsm) : 200 to 450 (200/250/300/350/400/450) or any other as agreed to between purchaser and supplier
 - b) For contact with Food/ Not for contact with Food
 - c) Optional Requirements
2. Considering the above, the following grouping guidelines for GoL/ CSOL shall be followed:
 - a) Boards of each grammage (200/250/300/350/400/450 or any other as agreed to between purchaser and supplier) shall be tested for all requirements to cover the grammage of board in the scope of licence. However, if there is no change in the material of the board, compliance to the Chemical requirements (as applicable) may be assessed on any one grammage of board and accordingly, applicant/Licencee shall submit a declaration that material for each of grammage of board applied for is the same.
 - b) If boards meant for contact with food of any grammage are tested, boards not meant for contact with Food may also be included in the scope of Licence for all applicable grammage.
 - c) If optional requirements are tested, then the optional requirement may be included in the scope of Licence across all grammage and sizes; and both board types viz for contact with Food/ Not for contact with Food, as applicable.
3. However, while considering grant of licence/inclusion of additional variety, it shall be ensured that the applicant/licensee has got the complete manufacturing and testing facilities for all the variety intended to be covered.
4. During operation of the licence, BOs shall ensure that all the samples are tested for all applicable requirements on the product, and varieties covered in the licence are tested in rotation, to the extent possible

ANNEX B

List of Test Equipment

Major test equipment essentially required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference		Test Equipment
	Tests	Cl. Ref.	
1.	Conditioning	-	Conditioning Chamber for conditioning test samples at $27 \pm 2^\circ \text{C}$ and 65 ± 2 percent relative humidity before carrying out tests as per IS 16984
2.	Squareness	5.2	Appropriate scale
3.	Thickness	5.3	- Dead weight micrometer - Thickness gauge - Conditioning chamber
4.	Grammage	5.4	- Area cutting device(Template) - Weighing Balance
5.	Size	5.5	- Appropriate scale - Conditioning Chamber
6.	Print Resistance of Printed cartons	5.6 (Annex - B)	- Liquid food intended to be packed in cartons - Cold Water - hard paper tissue
7.	Ink Adhesion of printed cartons	5.6 (Annex - C)	25 mm wide pressure sensitive tape or cello tape - Stop Watch
8.	Bulk	5.9	- Cutting device (Template) - Weighing Balance - Conditioning Chamber - Dead Weight micrometer - Thickness gauge
9.	Moisture	5.9	- Weighing Balance - Container as per clause 5.2 of IS 1060 (Part 5/ Sec2) - Hot air Oven - Desiccator
10.	Cobb (60 Sec)	5.9	- Distilled or deionized water - Blotting paper - Absorptiveness tester - Metal roller - Graduated cylinder
11.	Stiffness (bending resistance), L and W	5.7 & 5.9	Bending resistance tester as per Cl. 5.1 of IS 1060 (Part 5/sec 8)
12.	Brightness, indoor $C/2^\circ$	5.9	- Reflectometer - Reference standard - Working standards
13.	Gloss 75°	5.9	- Gloss meter - Primary Gloss Standard - High-Gloss reference standard - Intermediate Gloss Standard - Working standards - Zero Gloss Standards - Conditioning Chamber

14.	Ply bond strength	5.9	Ply bond strength tested as per T-569 pm-00
15.	IGT dry pick	5.9	- Inking device as per Cl. 4.1 of 1060 (Part 5/Sec9) - Printing device Cl. 4.2 of 1060 (Part 5/Sec9) - Evaluation device Cl. 4.3 of 1060 (Part 5/Sec9) - Material aiding devices - Conditioning Chamber
16.	Roughness (pps)	5.9	- Print surf tester as per Cl. 5.1 of 1060 (Part 5/Sec 17) - Principal components of the system as per Cl. as per Cl. 5.2 of 1060 (Part 5/Sec 17) - Measuring system as per Cl. 5.3 of 1060 (Part 5/Sec 17) - Conditioning chamber
17.	Specific requirements for, 1. direct food contact usage 2. OBA (optical brightening agent) 3. Anthraquinone	5.10.1	- As per IS 1776 or IS 12999 - As per EN 648 - As per CEN/TS 17630 : 2021
18.	Specific requirements for items in contact with food	5.10.2 (Dioxins and Furans)	As per US EPA 1613
19.	Specific requirements for items in contact with food	5.10.2 Table 2 (Cadmium)	- Atomic Absorption Spectrophotometer - Cadmium Hollow-Cathode Lamp or Multi element Hollow-Cathode Lamp - Conc. Nitric Acid - Hot Plate - Nitric Acid (1:1) - Dilute Nitric Acid (1:499) - Glass fibre filter - Stock Cadmium Solution - Intermediate Cadmium Solution - Standard Cadmium Solution
20.	Specific requirements for items in contact with food	5.10.2 (Chromium)	- Spectrophotometer - Shaker - Acetic Acid - Sulphuric acid - Distilled Water - Conc. Nitric Acid - Glass fibre filter - Diphenylcarbazide Solution - Stock, intermediate and Standard Chromium Solution - Indicator pH for range 0.5 to 1.5
21.	Specific requirements for items in contact with food	5.10.2 (Lead)	- Atomic Absorption Spectrophotometer - Lead Hollow-Cathode Lamp or Multi element Hollow-Cathode Lamp - Conc. Nitric Acid - boiling chips or glass beads - hot plate - Nitric Acid (1:1) - Dilute Nitric Acid (1:499) - Glass fibre filter - Stock Lead Solution - Intermediate Lead Solution - Standard Lead Solution

22.	Specific requirements for items in contact with food	5.10.2 (Mercury)	• Atomic Absorption Spectrometer • Mercury Vapour Generation Assembly • Mercury Hollow Cathode Lamp • Conc. Sulphuric acid • Conc. Nitric Acid • Stannous Chloride solution • Sodium Chloride — Hydroxylamine Sulphate Solution • Potassium Permanganate Solution • Potassium Persulphate solution • Stock mercury solution • Standard Mercury solution • Glass fibre filter • Mercury free distilled water
23.	Specific requirements for items in contact with food	5.10.2 (Pentachloro phenol (PCP))	• 250 ml round bottom flask • Soxhlet Extractor • Water Bath • Separating funnels • Injection syringes • Gas Chromatograph with ECD • Gas Columns • Acetone • n-Hexane • Acetic Anhydride • anhydrous sodium sulphate • vacuum evaporator • Sodium Sulphate Anhydrous • silica gel packed column • Pentachlorophenol stock solution and std. solution • Internal Standard stock solution • Internal Standard solution
24.	Specific requirements for items in contact with food	5.10.2 (Polychlorinated biphenyls (PCBs))	• 200 ml Erlenmeyer Flask • Water Bath • Separating Funnels • Injection Syringes (1 µl, 5 µl and 10 µl) • Gas Chromatograph with ECD • Glass columns • Ethanolic Potassium Hydroxide Solution • n-Hexane • Sodium Sulphate Anhydrous • silver nitrate • PCB Stock Solution • PCB Standard Solution • Internal Standard Stock Solution • Internal Standard Solution
25.	Surface pH	5.11	• Distilled or deionized water • Standard Buffer Solutions (pH 4, 7, 9) • Potassium Chloride solution • reflux condenser fitted with flask • electric heater • coarse, fritted glass filter • General Lab glassware • pH meter • arrangement for maintaining temperature between 20 °C and 25 °C
26.	Burst Factor	5.11	• Burst factor apparatus as per Cl. 5 of IS 1060 Part 7/Sec 1 • Conditioning Chamber

27.	Wax Pick number	5.11	• Waxes (2A to 26A) • Smooth Surface • Alcohol or low gas flame • Wooden block with hole • Stop watch
28.	Bendtsen Smoothness	5.11	• Bendtsen tester – variable-air flow meter type or electronic flowmeter type • Conditioning Chamber
29.	Water soluble chlorides [as sodium chloride (NaCl)]	5.11	• Distilled or DM water • Chloride Stock solution • Chloride matching solution • Nitric Acid • General Lab glassware • Wet Disintegrator • Ion Chromatograph • Syringe (Class A) • Straining device
30.	Water soluble sulphates [as sodium sulphate (Na ₂ SO ₄)]	5.11	• Distilled or DM water • Sulphate Stock solution • Sulphate intermediate solution • General Lab glassware • Wet Disintegrator • Ion Chromatograph • Syringe (Class A) • Straining device
31.	Fatty and/or similar acids (as C ₁₇ H ₃₃ COOH)	5.11	• Ether • Soxhlet Extraction Apparatus • Ether • Alcohol • phenolphthalein. • sodium hydroxide. • Distillation assembly • Phenolphthalein

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: **COATED FOLDING BOX BOARD** of same variety manufactured under similar conditions of production in a day.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

2. ENSURING COMPLIANCE THROUGH TESTING - Manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred :

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 **TEST RECORDS** - The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the package of Coated Folding Box Board For General Consumer Product packaging, provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per IS 16984: 2024.

3.2 Additional Marking requirements: The package shall also be marked with the following:

a) “For BIS certification details please visit www.bis.gov.in”

4. **REJECTION** - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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

(Recommended Levels Of Control By BIS- For Guidance Only)

(1)				(2)		
Clause	Requirements	Test Method		No of Samples	Frequency	Remarks
		Clause	Ref.			
4	Construction (Top Coating, Top Layer, Fillers, Back Layer, Bottom Coating)	-	IS 16984	One	Each Control unit	
5.1	General	-	IS 16984	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.2	Squareness	-	IS 16984	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.3	Thickness	-	1060 (part 5/ Sec 3)			
5.4	Grammage	-	IS 1060 (part 5/ sec 5)	One	Each Control unit	
5.5	Sizes	-	IS 1060 (part 5/ sec 3)	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.6	Print Resistance and Ink Adhesion of Printed Cartons	Annex – C	IS 16984	One	Each Control unit	
5.7	Stiffness	-	IS 1060 (part 5/ sec 8)	One	Each Control unit	

5.8	Strength	-	IS 16984	One	Each Control unit	
5.9, Table 1	Bulk	-	IS 1060 (part 5/ sec 3)	One	Each Control unit	
5.9, Table 1	Moisture	-	IS 1060 (part 5/ sec 2)	One	Each Control unit	
5.9, Table 1	Cobb (60 Sec)	-	IS 1060 (part 5/ sec 4)	One	Each Control unit	
5.9, Table 1	Stiffness	-	IS 1060 (part 5/ sec 8)	One	Each Control unit	
5.9, Table 1	Brightness	-	IS 1060 (part 4/ sec 13)	One	Each Control unit	
5.9, Table 1	Gloss 75 °	-	IS 1060 (part 5/ sec 12)	One	Each Control unit	
5.9, Table 1	Ply Bond Strength	5.9	T-569 pm-00	One	Each Control unit	
5.9, Table 1	IGT Dry Pick	-	IS 1060 (part 5/ sec 9)	One	Each Control unit	
5.9, Table 1	Roughness	-	IS 1060 (part 5/ sec 17)	One	Each Control unit	
5.10.1	Direct food contact usage	-	IS 1776/12999	One	Once in six Months	
	Optical brightening agent (OBA)		EN 648	One	Once in six Months	
	Anthraquinone		CEN/TS 17630 : 2021	One	Once in six Months	
5.10.2,	Dioxins and Furans	-	US EPA 1613	One	Once in six Months	
5.10.2, Table 2	Cadmium	Annex - D	IS 16984	One	Once in six Months	
5.10.2, Table 2	Chromium	Annex - D	IS 16984	One	Once in six Months	
5.10.2, Table 2	Lead	Annex - D	IS 16984	One	Once in six Months	
5.10.2, Table 2	Mercury	Annex - D	IS 16984	One	Once in six Months	

5.10.2, Table 2	Pentachlorophenol	Annex - D	IS 16984	One	Once in six Months	
5.10.2, Table 2	Polychlorinated Biphenyls	Annex - D	IS 16984	One	Once in six Months	
5.11, Table 3	Surface pH	-	IS 1060 (part 4/ sec 7)	One	Each Control unit	
5.11, Table 3	Burst factor	-	IS 1060 (part 7/ sec 1)	One	Each Control unit	
5.11, Table 3	Wax Pick Number a) Coated surface Uncoated or bottom surface	-	IS 1060 (part 3)	One	Each Control unit	
5.11, Table 3	Bendtsen smoothness	-	IS 1060 (part 5/ sec 20)	One	Each Control unit	
5.11, Table 3	Water Soluble Chlorides	-	IS 1060 (part 4/ sec 8)	One	Each Control unit	
5.11, Table 3	Water Soluble Sulphates	-	IS 1060 (part 4/ sec 9)	One	Each Control unit	
5.11, Table 3	Fatty and/or similar acids	-	IS 1060 (part 2)	One	Each Control unit	