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उत्पाद मैनुअल

**PLASTIC CRATES FOR FRUITS AND VEGETABLES
IS 15532: 2004 के अनुसार**

**PRODUCT MANUAL FOR
PLASTIC CRATES FOR FRUITS AND VEGETABLES
ACCORDING TO IS 15532: 2004**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 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 License/certificate.

1.	उत्पाद Product	:	IS 15532: 2004
	शीर्षक Title	:	Plastic Crates for Fruits and Vegetables
	संशोधनों की संख्या No. of Amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	The raw material shall be ISI-marked or the manufacturer shall submit test certificate from the supplier conforming to requirements of Cl. 3.2 of IS 15532:2004
b)	समूहीकरण दिशानिर्देश Grouping guidelines	:	Please refer Annex- A
c)	नमूने का आकार Sample Size	:	15 Pieces
3.	परीक्षण उपकरणों की सूची	:	Please refer Annex- B

	List of Test Equipment		
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex- C
5.	एक दिन में संभावित परीक्षण Possible tests in a day:		
	(i) General Requirements as per Cl. 3.1 (ii) Shape, Dimensions and Design as per Cl. 3.3 (iii) Mass as per Cl. 3.4 (iv) Appearance and Surface Finish as per Cl. 3.5 (v) Dimensional Stability as per Cl. 3.6 (vi) Handle Strength Test as per Cl. 3.10.1		
6.	लाइसेंस का दायरा /Scope of the License :		
	License is granted to use Standard Mark as per IS 15532:2004 with the following scope:		
	Name of the product	Plastic Crates for Fruits and Vegetables	
	Material	HDPE/PPCP and grade thereof	
	Design	Rigid/Collapsible, Solid and/or Perforated	
	Shape & Nominal Dimensions	As per declarations	
	Nominal capacity	As per declarations	

**BUREAU OF INDIAN STANDARDS
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ANNEX-A
GROUPING GUIDELINES

1. The manufacturer, shall declare the varieties they intend to cover under the scope of License.
The declarations submitted by the manufacturer shall consist the following:
 - a. Material;
 - b. Colour;
 - c. Shape;
 - d. Dimensions (length/breadth/width); tolerances on dimensions to be declared by the manufacturer;
 - e. Design of the plastic crate (to be accompanied with photograph);
 - f. Nominal capacity
 - g. Mass(minimum)
2. Plastic crates of maximum and minimum nominal capacity to be tested, provided the material, shape and design remains the same.
3. During the operation of the License, BO shall ensure that all the varieties covered in the License are tested in rotation to the extent possible.

ANNEX -B
LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Shape, Dimensions and Design Cl. 3.3	Measuring Tape Steel Scale Vernier Calliper Micrometer Weighing Balance/Measuring Jars and Cylinder
2	Mass Cl. 3.4	Weighing Scale
3	Appearance and Surface Finish Cl. 3.5	Vernier Calliper Steel Scale
4	Dimensional Stability Cl. 3.6	Measuring Tape Steel Scale Vernier Calliper Air-circulated oven Stop Watch
5	Confluence Line (Weld Line) Cl. 3.7	Water bath of adequate size with temperature controller Steel Ball of 2 kg Apparatus to drop the steel ball from height of 3m
6	Compressive Strength (Resistance to Applied Load) Cl. 3.8.1	Measuring Tape Steel Scale Vernier Calliper 5 kg Load 500 kg Load Stop Watch AC/ heaters for maintaining room temp at 27 ± 5 C
7	Resistance to Drop Cl. 3.8.2 (i) Bottom Drop Test (ii) Corner Drop Test	Dummies to fill the crates with specified load capacity Apparatus to drop the crates from height of 3m Conditioning Chamber for maintaining temp. of $27 \pm 1^\circ\text{C}$ and $5 \pm 1^\circ\text{C}$ Steel Plate Stop Watch Apparatus to drop the crates from height of 3m and 30cm
8	Resistance to Environmental Stress Cracking Cl. 3.9	2% solution of Teepole B 300 Water bath of adequate size with temperature controller & indicator Stop Watch
9	Handle Strength Test Cl. 3.10.1 - Suspension Test Cl. 3.10.2 - Free Fall Test	Dummies to fill the crates with specified load capacity Stop Watch Canvass Strap Setup of free fall of strap from 450 mm Arrangement to suspend, raise and drop the crate

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

ANNEX-C
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 and implement a calibration plan for the test equipment.

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 incorporated legibly and indelibly on the crate provided always that the material so marked conforms to each requirement of the specification

3.1 Each crate shall be legibly marked to give the information as per the requirement laid out in Clause 4 of IS 15532:2004. In addition, the following details shall be marked:

a) The BIS License number

b) The phrase 'Please see www.bis.gov.in for BIS certification details'. *

*In case of space constraints, (b) may be marked only on the package

4. CONTROL UNIT –Total quantity of plastic crates for fruits and vegetables of one design, shape, dimension, design, capacity and mass manufactured under identical conditions with same raw material, in a day, shall constitute a control unit for the purpose of tests according to this scheme.

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 License should be marked with Standard Mark.

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

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4.2	Marking	4.2	IS 15532	R	Each Piece	Each control unit	
3.1	General Requirements	3.1	IS 15532	R	Each Piece	Each control unit	
3.2	Material	3.2	IS 15532	S	-	Each Consignment	a) Since designation of base raw material as per IS 7328 or IS 10951 may have been revised as per the revised versions of Indian Standards, till the time the designation of base raw material in IS 15532 is modified according to the latest versions of IS 7328 or IS 10951, equivalent designation of base raw material for these Indian Standards shall be accepted. b) In case the consignment of raw material is accompanied with a test certificate from the supplier or it is ISI-Marked, no further testing is required
3.3	Shape, Dimensions and Design	3.3.1	IS 15532	R	One	Each control unit	

3.3	Capacity	3.3.2	IS 15532	R	One	Each control unit	
3.4	Mass	3.4	IS 15532	R	One	Each control unit	
3.5	Appearance and Surface Finish	3.5	IS 15532	R	One	Each control unit	
3.5	Handle Slot Dimension	3.5	IS 15332	R	One	Each-control unit	
3.6	Dimensional Stability	Annex B	IS 15532	R	One	Each control unit	
3.7	Confluence Line Strength	Annex C	IS 15532	R	One	Once in a week	
3.8	Mechanical Strength						
3.8.1	Compressive Strength (Resistance to applied load)	Annex D	IS 15532	R	Six	Once in a week	
3.8.2	Resistance to Drop	Annex E	IS 15532	R			
	(i) Bottom Drop Test (a) Resistance to drop at $27 \pm 1^{\circ}\text{C}$ (b) Resistance to drop at $5 \pm 1^{\circ}\text{C}$				(a) One (b) One	(a) Once in a week (b) Once in a week	
	(ii) Corner Drop Test				(a) One	(a) Once in a week	

	(a) Resistance to drop at $27 \pm 1^\circ\text{C}$ (b) Resistance to drop at $5 \pm 1^\circ\text{C}$				(b) One	(b) Once in a week	
3.9	Resistance to Environmental Stress Cracking	Annex F	IS 15532	R	One	Once in a week	
3.10	Handle Test						
3.10.1	Handle Suspension Test	Annex G	IS 15532	R	One	Each control unit	
3.10.2	Handle Free Fall Test	Annex G	IS 15532	R	One	Each Control Unit	

Note-1: In case of failure of Clause 3.1 General Requirements, 3.4 Mass and 3.5 Appearance and Surface Finish, that particular piece shall be rejected.

Note-2: In case of failure of any sample as per Clause 3.3 Shape, Dimensions and Design, the number of samples to be increased to double the size and in case of failure in any one of those samples, the whole control shall be rejected.

Note-3: In case of failure of samples in Clauses 3.6, 3.7, 3.8 to 3.10, the lot shall be rejected. Only after 3 consecutive lots are found passing, the frequency stipulated in the above Table 1 is to be reverted.

Note-4: 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 empanelled by the Bureau.

Note-5: 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.