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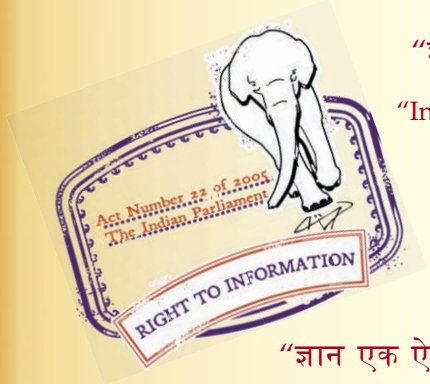
IS 11131 (1984): wooden casks and barrels [CED 9: Timber and Timber Stores]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS : 11131 - 1984

Reaffirmed 1989*

(Reaffirmed 2003)

Indian Standard

SPECIFICATION FOR WOODEN CASKS AND BARRELS

UDC 621·798·133 [674·06]

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

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April 1985

Indian Standard

SPECIFICATION FOR WOODEN CASKS AND BARRELS

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Indian Standard

SPECIFICATION FOR WOODEN CASKS AND BARRELS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 14 November 1984, after the draft finalized by the Wood and Wood Products Containers Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 Wooden casks and barrels of different sizes are used for packaging and storage of powders, semisolids, solids and liquids. It was felt necessary to standardize these casks to optimize design and lay down guidelines for the testing of these casks.

1. SCOPE

1.1 This standard prescribes the requirements and methods of tests for wooden casks and barrels from 10 to 300 litres capacity.

2. TERMINOLOGY

2.1 For the purpose of this standard, the following definitions in addition to those given in IS : 707-1968* and IS : 6703-1972† shall apply.

2.1.1 *Barrel* — A bulged cylindrical container, of length greater than the breadth, made of wooden staves bound together with hoops and having two flat ends of equal diameter

2.1.2 *Cask* — A term used synonymously with barrel, but usually of large size or capacity. Casks may be of slack or tight cooperage.

2.1.3 *Hoop* — A circular band, of metal, wire or wood, used to hold the staves of a cask or barrel together and reinforce the same.

3. CAPACITY AND CONSTRUCTION

3.1 The casks/barrels shall be of the sizes and capacities as prescribed in Table 1.

*Glossary of terms applicable to timber technology and utilization (*second revision*).
†Glossary of wooden packaging terms.

TABLE 1 SIZES FOR WOODEN CASKS/BARRELS

(*Clause* 3.1)

Nominal Capacity	External Height	Top and Bottom Diameter	Wall Thickness	Hoops		
				Number	Width	Thickness
(1)	(2)	(3)	(4)	(5)	(6)	(7)
litres	mm	mm	mm	mm	mm	mm
10	305	190	12	4	25	1·25
20	455	280	12	4	25	1·25
40	530	345	12	6	25	1·25
55	610	355	12	6	25	1·25
90	760	420	20	6	35	1·58
100	760	460	20	6	35	1·58
200	900	610	25	6	50	1·58
300	1 060	660	25	6	50	1·58

NOTE — Normal manufacturiug tolerances are permissible for all dimensions.

3.2 The staves and planks used for the construction of casks/barrels shall be of thickness as given in col 4 of Table 1.

3.2.1 The planks shall be of 40 to 100 mm width for side walls and 70 to 150 mm width for the ends.

4. MATERIALS

4.1 The timber used for the construction of wooden casks/barrels shall be of any of the species given in Appendix A, depending on the contents to be filled. Any other species for specific purpose as agreeed to between the purchaser and the seller may also be used.

4.2 The timber used for the construction shall be well seasoned to a moisture content not exceeding 15 percent when determined according to the method given in IS : 287-1973*. It shall be reasonably straight grained, free from knots, centreheart, insect attack, any kind of decay, brashness, dead knots, splits, warps or any other defects which would

*Recommendations for maximum permissible moisture content for timber used for different purposes (*second revision*).

adversely affect the utility of the casks. Cracks, if any, shall be along the grain and not across the width. In the case of casks used for liquids, cracks shall not be permitted.

4.3 Hoops and Rivets — The hoops shall be made of mild steel or wood. The number and width of mild steel hoops shall be as specified in Table 1. The hoops shall be attached by means of aluminium rivets.

5. MANUFACTURE

5.1 Unless otherwise specified, the wooden casks/barrels shall be manufactured to the shape and design as shown in Fig. 1.

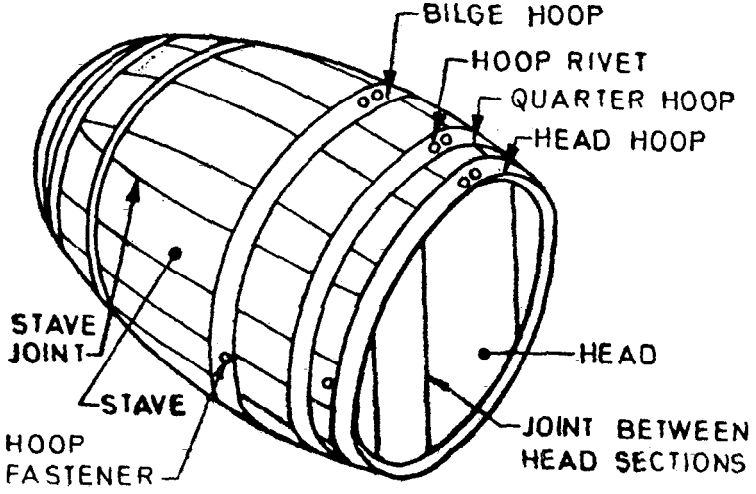

FIG. 1 WOODEN CASKS

WORKMANSHIP AND FINISH

6.1 The surface of the wooden casks/barrels shall be smoothly finished. The workmanship and finish shall be good.

6.2 The edges of the staves of the casks/barrels shall be suitably smoothened so that when two pieces are joined together, there is no gap. The top and bottom lids shall be fixed to the side wall by inserting the lids in the grooves provided for the same on the inside wall of the cask or barrel. The hoops shall then be put into position with the required pressure to reinforce the cask when the bulge in the centre is uniformly prepared.

7. SAMPLING

7.1 The norms of sampling and testing shall depend upon the contents to be filled into the casks and shall be done according to the mutual agreement between the purchaser and the supplier.

8. DELIVERY

8.1 Unless, otherwise specified, the casks/barrels shall be delivered in a completely assembled form.

9. TESTING

9.1 Leakage Test — Each cask/barrel when used for packing liquids or semi-solids shall be subjected to water leakage test. The cask after filling with water at ambient temperature shall be left for one hour. The ends and wall joints shall be examined for any leakage of water by rotating it on sides. Initial leakage or seapage of water when the cask is new and dry shall not be considered as failure in this test.

9.2 Drop Test — One cask/barrel of each capacity shall be subjected to drop test after filling it with the intended contents or any other similar material as agreed to between the purchaser and the manufacturer of casks. The height and number of drops shall be as agreed to between the purchaser and the manufacturer.

9.3 Inclined Impact Test — One cask/barrel of each capacity shall be subjected to inclined impact test by rolling free on its sides on an inclined surface and stopping it against the impact surface or bumper. The length and height of the inclined surface shall be as agreed to between the purchaser and the manufacturer [*see* IS : 7028 (Part 3)-1973*].

10. MARKING

10.1 Unless otherwise specified, each cask/barrel shall be legibly and indelibly marked with the following information:

a) Manufacturer's name or initials or recognized trade-mark, if any;

b) Year and month of manufacture; and

c) Capacity in litres.

*Performance test for complete filled transport packages : Part 3 Horizontal impact test, inclined plane test and pendulum test.

10.1.1 The cask/barrel 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.

APPENDIX A

(*Clause* 4.1)

TIMBER SPECIES SUITABLE FOR WOODEN CASKS AND BARRELS

[*For wet coopered casks/barrels (for liquids)*]

Quercus spp. (Indian oak)

Grewia tillifolia (dhaman)

Ougeinia Oojeinensis (sandan)

Artocarpus hirsutus (aini)

Dysexylum malabarieum (white cedar)

Mangifera indica (mango)

Gmelina arborea (gamari)

Shorea robusta (sal)

Lagorstroemia lanceolate (bonteak)

Tectona grandis (teak)

[*For dry coopered casks/barrels (for powders, etc)*]

In addition to the species already recommended for wet cooperage, the following species are suitable for dry cooperage:

Boswellia serrata (salai)

Hymenodictyen excelsum (kuthan)

Picea smithiana (spruce)

Lannea coromandelica (jhingan)

Terminalia paniculate (kindal)

Machilus spp. (machilus)

Albiziaodoratissima (kala siris)