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BUREAU OF INDIAN STANDARDS

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Draft **AMENDMENT NO. 1**

TO

IS 17043 (Part 2): 2024 SHOES — SPECIFICATION PART 2 SHOES FOR GENERAL PURPOSE

ICS 13.340.50; 61.060

Footwear Sectional Committee, CHD 19 Last date for receipt of comments: **06-07-2025**

(*Page* 1, *clause* **5.1,** line 1**) —** Substitute 'general purpose shoes' *for* 'formal and casual shoe'

[*Page 1, Table 1, Sl. No.*(i)] **—** Substitute the following for the existing:

1st column	2nd column	3rd column	4th column	5th column	6th column	7th column
i)	Bond strength, N/mm, *Min* Upper to sole/mid sole/composite sole	1.0 1.0 (in case of material tear)	2.5 2.0 (in case of material tear)	1.5 1.0 (in case of material tear)	—	Annex C of IS 15844(Part1)

[*Page 1, Table 1, Sl.No.*(xiii)] **—** Substitute the following for the existing:

1st column	2nd column	3rd column	4th column	5th column	6th column	7th column
xiii)	Abrasion resistance (volume loss), mm^3					
	a) Cellular sole (at 5 N force), *Max*	1 000	500	1 000	-—	IS 3400 (Part 3)
	b) Solid sole (at 10 N force), *Max*	500	300	500		

	c) Abrasion resistance, mm/kcs, *Max* (for leather sole only)	-—	7	-—	-—	Annex B of IS 6721

[*Page* 1, *Table 1*, Sl No. (xiv), *col (3), col (4), col (5)*] **—** Substitute 'Category 1 and Category 2' *for* 'Category I and Category II'

(*Page 1, Table 1*) **—** Add the following at the end of table:

NOTES

1 Cellular sole – Sole with density less than 0.90 g/cm^3 density.
2 Solid sole – Sole with density 0.90 g/cm^3 and above.

[*Page 4, Table 3, Sl. No.(iii)]* **—** Substitute the following for the existing:

1st column	2nd column	3rd column	4th column
(iii)	Flexing resistance, flexes at (-) 5 °C (applicable only cold region)	No crack and fat spue at 25 000 flexes	IS 8085 (Part 20)/ISO 17694

[*Page 5, Table 5, Sl.No*.(ii)] **—** Substitute the following for the existing:

1st column	2nd column	3rd column	4th column
(ii)	Flexing resistance, flexes at (-) 5 °C (applicable only cold region)	No crack and fat spue at 25 000 flexes	IS 8085 (Part 20)/ISO 17694

(*Page 5, clause* **6.1.4***, line 3*) **—** Substitute 'non- leather' *for* 'leather'

(*Page 8, Table 11)* **—** Substitute the following for the existing:

Sl No.	**Characteristics**	**Requirement**	**Methods of Test, Ref to**
		Adults	
		Type 1	
(1)	(2)	(3)	(4)
(i)	a) Water penetration	No water penetration till 30 min	Annex E
	b) Water absorption, percent, *Max*	25	

[*Page 11*, *Table 18*, Sl No. (i), col (5)] **—** Substitute '—' *for* 'ISO 10751'

(Page 19, Annex D) — Insert the following Annex E after Annex D and renumber Annex E as Annex F:

ANNEX E

WATER RESISTANCE (DYNAMIC METHOD)

(*Table* 11)

E-1 SCOPE

This method is used to determine the water resistance of heavy leathers. The method allows determination of the penetration time, water absorption, area of penetration and water penetration rate as required. It is applicable to all types of heavy leathers.

E-2 PRINCIPLE

The test piece is continuously wetted on one surface and is flexed and compressed in the same manner asthe sole of a shoe during walking. This enables various aspects of heavy leather water resistance to be measured with respect to time.

E-3 APPARATUS

E-3.1 Test Machine

Including the items described in **E-3.2** to **E-3.8.** The general arrangement of the test machine is shown in Fig 1.

E-3.2 Roller (A)

Diameter 120 mm ± 2 mm and width at least 50 mm.

E-3.3 Platform (C)

With a roughened upper surface and sufficient perforations to keep the surface wet by a flow of water through the platform.

E-3.4 Clamp (D)

To hold one short side of the test piece (B) in a horizontal position on the platform (C).

E-3.5 Clamp (E)

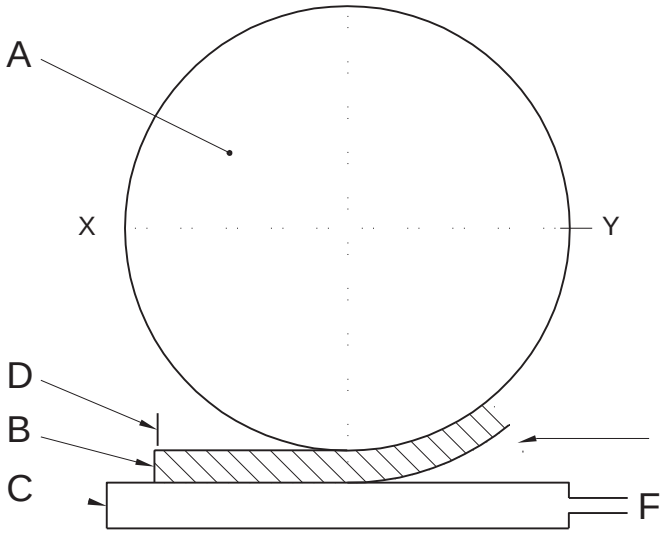
To attach the other short side of the test piece to the roller, the attached side being parallel to the axis of the roller. The clamp is held by a weak spring to maintain the sample under slight tension. The positioning of clamps D and E shall ensure a total length of test piece on the platform of 100 mm ± 1 mm.

E-3.6 Water supply (F),

Through the platform (C) and a means of draining away excess water.

E-3.7 Means of moving the axis of the roller, with a crank motion along the X-X-axis, with an amplitude of (50 ± 2) mm about a point directly over the midpoint of the test piece and frequency of (20 ± 1) cycles per min. The movement of the axis causes the roller to move backwards and forwards along the test piece, raising one end and bending it to conform to the shape of the roller.

E-3.8 Means of pressing the platform, test piece and roller together with a force of 80 N ± 5 N.



Key
A roller
B test piece
C platform
D clamp
E clamp
F water supply

FIG. 1 — GENERAL ARRANGEMENT OF TEST MACHINE

E- 3.9 Undyed cotton gauze

Cut into rectangles of suitable dimension to be fixed on the platform.

E- 3.10 Press knife

The inner wall of which is a rectangle of suitable length to be fixed in the clamps so that thetotal length of the test piece on the platform is 100 mm ± 1 mm with a width of 40 mm ± 1 mm, as specified in ISO 2419.

E-3.11 Thickness gauge — as specified in IS 5914 (Part 11)/ISO 2589.

E- 3.12 Absorbent cellulosic board

Thickness 1.6 mm ± 0.1 mm and mass 1 200 g/m^2 ± 300 g/m^2, cut intorectangles of (105 mm ± 5 mm ± 60 mm ± 5 mm).

E- 3.13 Abrasive paper - Grade P120

E- 3.14 Balance — reading to 0,001 g.

E- 3.15 Clock — reading to 1 s.

E- 3.16 Flexible waterproof adhesive

For example, polychloroprene, poly (vinyl chloride) or polyurethane.

E-3.17 Transparent overlay

Minimum size 100 mm × 40 mm, marked with a central matrix of 28 × 10 squares of 9 mm^2, as shown in Fig. 2.

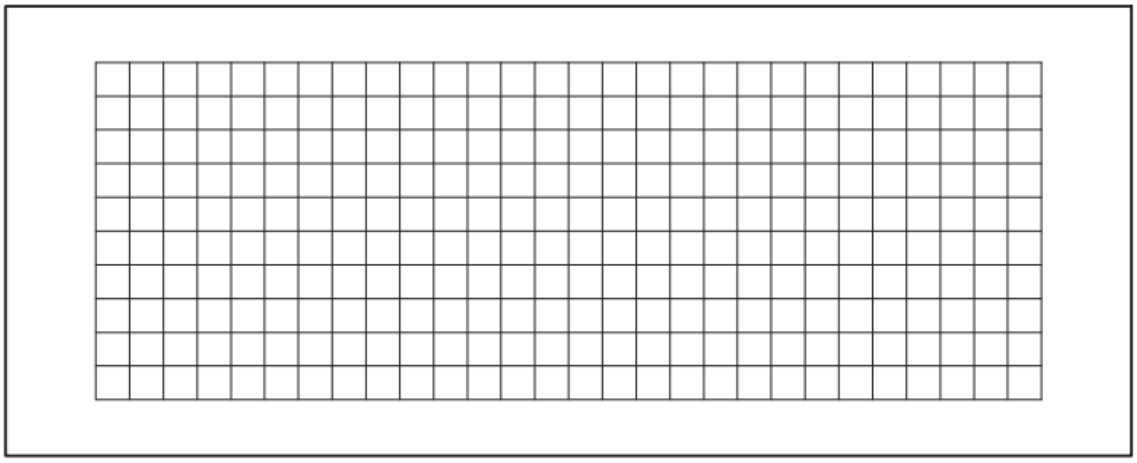


FIG. 2 — TRANSPARENT OVERLAY

E- 4 SAMPLING AND SAMPLE PREPARATION.

E-4.1 Cut at least three test pieces from the laboratory sample by applying the press knife (**E- 3.10**) to the grain surface, oriented with the longer side parallel to the backbone.

If there is a requirement for more than two hides or skins to be tested in one batch, then only one test piece need be taken from each hide or skin, provided that the overall total is not less than three test pieces.

E-4.2 Place the surface which is to be in contact with the ground (normally the grain surface), on a fresh pieceof abrasive paper (**E-3.13**). Press the test piece against the abrasive paper with a force of 10 N ± 1 N. Roughen the leather surface by moving the test piece ten times backwards and forwards on the abrasive paper over a length of 100 mm ± 10 mm each time.

NOTE — Thin waterproof finish applied to the grain of sole leather can greatly reduce water penetration during the test but can be ineffective on a sole in practice because it is rapidly removed during wear. For this reason, the test pieces are roughened as described above prior to testing. The aim of this preparation is to remove the finish. If a heavier finish has been applied, then more abrasion may be required.

E-4.3 Apply a coat of flexible adhesive (**E-3.16**) to the cut edges of the test piece, ensuring that there are no air bubbles within the coat. Allow to dry for 35 min ± 5 min and, if necessary, apply a second coat of adhesive.

E-4.4 If the water penetration rate is to be determined, condition the cellulosic board (**E-3.12**) in accordance with IS 5868 (Part 3)/ISO 2419.

E-5 PROCEDURE

E-5.1 General

E-5.1.1 Weigh the test piece, m_0, to the nearest 0.001 g.

E-5.1.2 Determine the thickness in accordance with IS 5914 (Part 11)/ISO 2589.

E-5.1.3 Place the cotton gauze (**E-3.9**) on the platform and adjust the flow of water to give a flow of 7.5 ml/min ± 2.5 ml/min over the platform.

E-5.1.4 Lay the test piece on the gauze with the roughened surface downwards and attach the narrow ends tothe platform and roller.

E-5.1.5 Press the test piece on the roller with a force of 80 N ± 5 N.

E-5.1.6 Set the roller in motion and record the time.

E-5.2 Determination of penetration time

E-5.2.1 Note the time at which water is clearly seen on the leather surface adjacent to the roller, ignoring any penetration that occurs within an area 5 mm from the edge of the test piece.

E-5.2.2 An acoustic or optical signal may be used to help detect initial water penetration, but the effective penetration of water shall be checked by visual observation.

E-5.3 Determination of water absorption

E-5.3.1 At the end of a specified period (i.e. 15 min, 30 min, 60 min or when penetration of water occurs), stop the machine, remove the test piece, and blot it lightly with filter paper to remove water adhering to the surface, taking care not to force water out of the sample. Weigh the test piece, m_1, to the nearest 0.001 g.

E-5.3.2 If the determination of water absorption after longer periods of time is required, return the test piece tothe machine, and continue the test.

E-6 EXPRESSION OF RESULTS

E-6.1 Water absorption

The water absorption w_a, expressed as a percentage (%), shall be calculated using the formula:

$$w_a = \frac{(m_1 - m_0) \times 100}{m_0}$$

Where

m_1 is the mass of the test piece after any test period, in grams; and

m_0 is the initial conditioned mass of the test piece, in grams.

E- 7 TEST REPORT.

The test report shall include the following for each test piece:

a) the average thickness of the test piece, in mm, to the nearest 0.1 mm;

b) the average penetration time, in minutes, to the nearest 1 min, if determined; and.

c) the average percentage water absorption at each test period to the nearest 1 percent, if measured.