BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

मोल्डेड पीवीसी यूनिट आउटसोलस — विशिष्टि

(आई एस 6719 का *पहला पुनरीक्षण*)

Draft Indian Standard

Moulded PVC Unit Outsoles — Specification

(*First Revision* of IS 6719)

(ICS 61.060)

Footwear Sectional Committee, CHD 19	Last Date for Comments: **17 September 2025**

FOREWORD

(*Formal clause will be added later*)

This standard was first published in 1972, in which the requirements for PVC soles and heels intended for the manufacture and repair of footwear were specified. The design aspect of soles and heels and the composition of the PVC were kept out of the specification, prescribing only the essential physical requirements. The sizes of soles and heels were also not being specified but helpful guidance was drawn from IS 1638 while deciding about the sizes.

In this revision, the following changes have been incorporated in the revised standard:

a) The title of the standard has been changed from 'Specification for Solid PVC Soles and Heels' to 'Moulded PVC Unit Outsoles — Specification'
b) The scope of the standard has been modified;
c) Material clause has been updated;
d) Table 1 for physical requirements has been updated;
e) The requirements for abrasion resistance and flexing resistance have been incorporated, and the requirements for tensile strength and elongation at break have been deleted;
f) Packing and marking clause has been updated;and

g) Additionally, various editorial corrections, and references have been updated to bring out the standard in line with the latest style and format of Indian Standards.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Draft Indian Standard

MOULDED PVC UNIT OUTSOLES — SPECIFICATION

(*First Revision*)

1 SCOPE

1.1.1 This standard prescribes the requirements and the methods of sampling and test for moulded PVC unit outsoles.

1.1.2 Top-lifts and ladies high heel (heels with heel height above 50 mm) are not covered in this standard

2 REFERENCE

The Indian standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Indian standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 2050 shall apply.

4 REQUIREMENTS

4.1 Material

The materials used for soles shall be compounded from PVC resin or blends with its copolymers. The resins would be compounded with suitable plasticizers and stabilizers.

4.2 The outsole shall have antislip design, or any other suitable design as agreed to between the purchaser and manufacturer.

4.3 The surface shall be free from blemishes and defects. All spew and moulding flashes shall be neatly trimmed, so as to have clean edges.

4.4 The outsoles manufactured in accordance with this standard may be made in all sizes as per IS 1638.

4.5 Physical Requirements

The material shall comply with the physical requirements given in Table 1.

Table 1 Requirements for Moulded PVC Unit Outsoles

(*Clause* 4.5)

S No.	Characteristics	Requirement	Method of Test, Ref to	
			Annex	IS
(1)	(2)	(3)	(4)	(5)
i)	Relative density, *Max*	1.3	—	IS 10702
ii)	Hardness, degree Shore A	50 to 85	—	IS 12240 (Part 2)
iii)	Volatility, percent by mass, *Max*	1.0	**B**	—

iv)	Lead content (as Pb), ppm, *Max*	2.0	—	IS 12240 (Part 5)
v)	Flexing resistance, Bennewart method, cut growth at the end of 30 000 cycles, mm, *Max*	6.0	—	IS 15844 (Part 1)
vi)	Abrasion resistance at applied force of 10 N (Volume loss), mm^3, *Max*	350	—	IS 3400 (Part 3)
vii)	Thickness, mm, *Min*	2.0	—	IS 12240 (Part 1)
viii)	Tear strength (average force), kN/m, *Min*	5.0	—	IS 3400 (Part 12)

5 PACKING AND MARKING

5.1 Packing

The soles may be packed as agreed to between the purchaser and the supplier. Each package shall contain soles of same size only and may be marked with the name of the item, batch/code number, size, and manufacturer's name or its recognized trade-mark, if any.

5.2 Marking

5.2.1 Each sole shall be marked with the following particulars on their outer waist:

a) Identification of source of the manufacturer or brand name, if any;
b) Size of the footwear for which it is intended; and
c) Made with recycled PVC (This shall be marked if recycled PVC is used in the manufacturing of the outsoles).

5.2.2 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

6 SAMPLING

For the purpose of ascertaining the conformity of soles in a consignment to this standard, the scale of sampling and criteria for conformity shall be as prescribed in Annex C.

ANNEX A

(*Clause* 2)

LIST OF REFFERED STANDARDS

IS/ISO No.	*Title*
IS 1638 : 1969	Specification for sizes and fitting of footwear (*first revision*)
IS 2050: 1991	Glossary of terms to relating to footwear (*first revision*)
IS 3400	Methods of test for vulcanized rubber
(Part 3): 2021/ ISO 4649:2016	Abrasion resistance using a rotating cylindrical drum device (*third revision*)
(Part 12):2022/ ISO 34-1:2015	Ear strength-crescent test piece (*first revision*)
IS 10702:2023	Hawai Chappal-Specification
IS 12240	Methods of test for polyvinyl chloride boots
(Part 1) : 1988	Measurement of thickness
(Part 2) : 1988	Determination of durometer hardness, shore A
(Part 5) : 1988	Determination of lead content
IS 15844 (Part 1):2023	Sports Footwear Part 1 General Purpose (*first revision*)
IS 4905:2015/ ISO 24153 : 2009	Random sampling and randomization procedures (*first revision*)

ANNEX B

[*Table* 1, *Sl No* (iii)]

METHOD OF TEST FOR MOULDED PVC UNIT OUTSOLES

B-1 DETERMINATION OF VOLATILITY

B-1.1 Apparatus

B-1.1.1 *Oven*

A suitable oven which constant air circulation and capable of maintaining temperature at 130 °C.

B-4.1.2 *Desiccator*

B-4.2 Disc of 57 mm diameter shall be cut from the test slab made of the same composition of material and cured under identical condition and shall be provided by the supplier. Condition the test piece for 24 hours at 27 ± 2°C and 65 ± 2 percent relative humidity.

B-4.3 *Procedure*

Weight the test piece to the nearest 0.1 g in a dish. Heat it at 130 °C for 3 h in oven. Cool it in a desiccator and weigh. There shall be no discoloration at the end of the test.

B-4.4 Calculation

B-4.4.1 Calculate the volatility as follow:

$$Volatility, percent\ by\ mass = \frac{M_1 - M_2}{M_1} \times 100$$

where,

M_1 = original mass, in g, of the test piece; and

M_2 = mass, in g, of the test piece after heating.

ANNEX C

(*Clause* 6)

SCALE OF SAMPLING OF MOULDED PVC UNIT OUTSOLES

C-1 LOT

C-1.1 All PVC soles in a consignment, having the same design and dimensions, belonging to the same batch of manufacture and made of similar PVC mix and type shall be grouped together to form a lot. The maximum lot size shall be approximately 5 000 pairs.

C-1.2 Samples shall be selected and examined from each lot separately for ascertaining the conformity of the material to the requirements of this specification.

C-2 SCALE OF SAMPLING

C-2.1 The number of PVC soles to be selected from any lot depends on the size of the lot and shall be in accordance with co1 2 and 3 of Table 2.

Table 2 Scale of Sampling for Different Tests

Sl No	No. of Soles in the lot (in pairs)	Visual and dimensional characteristics		Number of physical tests for each characteristic
		Sample Size (In Pair)	Acceptance No.	
(1)	(2)	(3)	(4)	(5)
i.	Up to 500	8	0	2
ii.	501 to 1 000	13	1	3
iii.	1 001 to 3 000	20	1	4
iv.	3 001 to 5 000	32	2	5

C-2.2 The soles shall be selected at random from the lot. For random selection procedures guidance may be had from IS 4905.

C-3 CRITERIA FOR CONFORMITY

C-3.1 All the soles drawn under **C-2.1** shall be subject to visual examination for the material (**4.3**) and dimensional checks (**4.4**). The number of defective pairs under each of the above two categories of tests shall not exceed the acceptance number given in col 4 of the Table 2 if the lot is to be accepted under this clause.

C-3.2 Physical Tests

Only if the lot passes the tests under **C-3.1**, it should be tested for physical characteristics. The number of sample pieces to be selected for this purpose depends on the number of tests to be conducted as indicated in col 5 of table 2. Test pieces for relative density and hardness shall be prepared directly from the representative sample selected in accordance with **6**. For all other tests, test slab made of the same composition of the material and cured under identical conditions shall be supplied by the supplier[1]. The lot shall be accepted under the clause only if all the test results satisfy the corresponding requirements prescribed in Table 1.

NOTE — [1]The supplier shall issue certificate to the effect that these slabs are made with the same composition and cured under technical identical condition.