

**BUREAU OF INDIAN STANDARDS**

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भारतीय मानक मसौदा  
पूरे रबड़/ पॉलीमर के गम जूते और ऐंकल जूते  
भाग 3 बच्चों के लिए

*Draft Indian Standard*

**All Rubber / Polymer Gum Boots and Ankle Boots**  
**Part 3 For Children**

(ICS 61.060)

Footwear Sectional Committee, CHD 19

Last Date for Comments: **30 September 2025**

**FOREWORD**

*(Formal clause will be added later)*

There is currently no Indian Standard available in the country for gum boots and ankle boots for children. Keeping in mind that several state governments procure these for school children, along with domestic demand, it is essential to develop a standard. This will help ensure the availability of quality and durable gum boots and ankle boots for school students and domestic consumers.

Realizing the need for a standard for gum boots and ankle boots in the country for children, the Footwear Sectional Committee decided to develop a separate standard. The standard prescribes the constructional and functional performance requirements. Additionally, chemical requirements have been incorporated into the standard to protect the wearer of the boot from hazardous chemicals.

This Indian Standard is published in several parts. This standard, Part 3 of IS 5557 prescribes requirements, methods of sampling and tests for all rubber /polymer gum boots and ankle boot for children.

The other parts in this series are:

Part 1 Safety and Protective

Part 2 Occupational Purposes

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*

# ALL RUBBER / POLYMER GUM BOOTS AND ANKLE BOOTS PART 3 FOR CHILDREN

## 1 SCOPE

This standard prescribes requirements, methods of sampling and tests for all rubber /polymer gum boots and ankle boot for children.

## 2 REFERENCES

The 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 revisions, and parties to agreement based on this Indian Standard are encouraged to investigate the possibility of applying the most recent editions of the Indian Standards indicated in Annex A.

## 3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 2050 shall apply, in addition for the following:

**3.1 Unlined Footwear** — The footwear manufactured in conventional assembly from single texture rubberized fabric and vulcanized, is an unlined footwear.

## 4 TYPE

This standard covers the following two types based on design:

- a) *Type 1* — Ankle boots; and
- b) *Type 2* — Wellington/Gum boots.

## 5 SAMPLING AND CONDITIONING

**5.1** Wherever, possible test pieces shall be taken from the whole footwear unless otherwise stated. If it is not possible to obtain test pieces from footwear large enough to comply with tests requirements, then samples may be taken from the raw material from which the component has been manufactured. However, this should be reported in the test report.

**5.2** All test shall be conditioned at  $27\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and 65 percent  $\pm$  5 percent Relative Humidity (RH) for 24 h.

## 6 REQUIREMENTS

### 6.1 Design

The boots shall be made of rubber/polymer with fabric lining as shown in Fig. 1 for type 1, and Fig. 2 for Type 2 respectively. The sole and heel shall be of made of rubber or polymer and anti -slip design to prevent slip. Design shown in the drawings are recommendatory only.

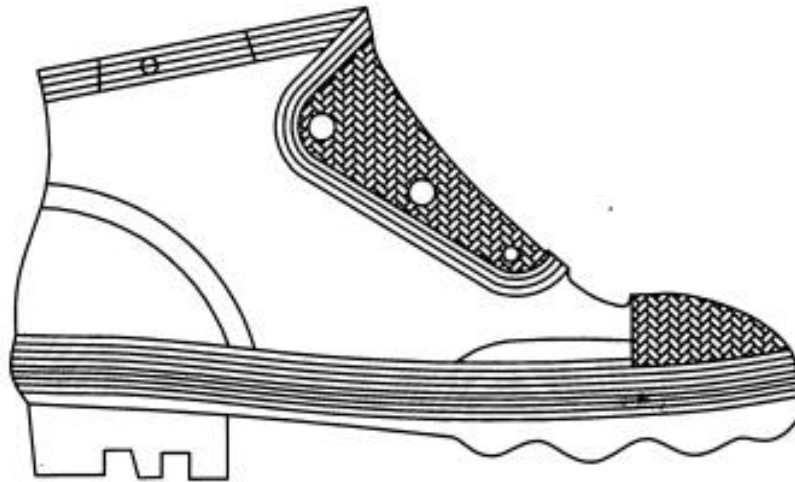


FIG. 1 ANKLE BOOTS, TYPE 1



FIG. 2 GUM BOOTS, TYPE 2

## 6.2 Size and fittings

The recommended size and fittings of gum boot and ankle boot may be guided in accordance with IS 1638. The recommended classification of age groups with respect to categories and sizes is given in Table 1.

**Table 1 Classification of age groups with respect to categories and sizes**  
(Clause 6.2)

SI No.	Category	Groups	Age	Size
(1)	(2)	(3)	(4)	(5)
i)	Category 1	Kids Group	4 to 8 years	9,10,11
ii)	Category 2	Children Group	8 to 11 years	12, 13, 1
iii)	Category 3	Boys and Girls Group	11 to 12 years	2,3,4,5
iv)	Category 4	Youth Group	Above 13 years	6,7,8,9

### 6.3 Height of Upper

The height of upper shall be minimum 107 mm for size 5 with increase or decrease of 2.5mm for each size when tested in accordance with IS 15298 (Part 1).

### 6.4 Construction

**6.4.1** The footwear shall be manufactured by injection/ casting/compression and conventional assembly, as suitable through the process of vulcanization of rubber and can be with or without lining. The edges of the upper and tongue may be binded with coated/uncoated binding material.

**6.4.2** The sole attachment may be made by direct moulding /vulcanization process. The sole may be single or multilayer.

### 6.5 Material

Material used for making gum boot and ankle boot shall be as given in Table 2.

**Table 2 Material**  
(Clause 6.5)

SI No.	Components of the Gum boot and ankle boot	Material
(1)	(2)	(3)
i)	Leg	
	a) Inner	Fabric (Natural/ synthetic)
	b) Outer	Rubber/ Polymer
ii)	Vamp	
	a) Inner	Fabric (Natural/Synthetic)
	b) Outer	Rubber/Polymer
iii)	Counter	Rubber/polymer
iv)	Inner reinforcement at vamp	Rubberized fabric
v)	Heel	Rubber/Polymer
vi)	Outer toe cap	Rubber/Polymer
vii)	Foxing strip	Rubber/Polymer
viii)	Top Binding	Rubber/Polymer

ix)	Insole	
	a) Inner	Rubber/polymer
	b) Outer	Fabric (Natural /Synthetic)
x)	Full Bellow Tongue	Single texture rubberized/Polymerized fabric

## 6.6 Upper

The upper of gum boot and ankle boot shall conform to the requirement given in Table 3.

**Table 3 Upper**

(Clause 6.6)

SI No.	Characteristics	Requirement	Method of test, Ref to
(1)	(2)	(3)	(4)
i)	Thickness, mm, <i>Min</i>	1.5	IS 15298 (Part 1)
ii)	Breaking Force, N, <i>Min</i>	180	IS 15298 (Part 1)
iii)	Flexing Resistance	No crack at 125000	IS 15298 (Part 1)
iv)	Abrasion resistance,		IS 15298 (Part 1)
	a) Dry 12 800 cycles; and	No hole formed	
	b) Wet 6 400 cycles	No hole formed	

NOTE — Requirement i) , ii) and iii ) to be tested for rubber and iv ) to be tested on fabric surface inner side of the upper .

## 6.7 Outsole

The outsole of gum boot and ankle boot shall conform to the requirement given in table 4.

**Table 4 Outsole**

(Clause 6.7)

SI No.	Characteristics	Requirement		Method of test, Ref to
		Fore part	Heel	
(1)	(2)	(3)	(4)	(5)
i)	Thickness			IS 15298 (Part 1)
	a) Fore part with cleat (upto size 2), mm, <i>Min</i>	5.0	13.0	
	b) Fore part with cleat (above size 2) mm, <i>Min</i>	6.0	23.0	
	c) Cleat Height, mm , <i>Min</i>	2.5	2.5	
ii)	Tear strength, N/mm, <i>Min</i>	5		IS 15298 (Part 1)
iii)	Abrasion resistance (volume loss), mm <sup>3</sup> , <i>Max</i>	250		IS 15298 (Part 1)
iv)	Flexing resistance, mm, <i>Max</i> ( Cut growth at 30,000 flexes)	4.0		IS 15298 (Part 1)
v)	Bond strength, N/mm , <i>Min</i>	4.0		IS 15298 (Part 1)

3.0 for material  
tear

## 6.8 Rubber Component

The physical requirement of rubber components of gum boot and ankle boot shall conform to the requirement given in table 5.

**Table 5 Physical requirement of rubber**

(Clause 6.8)

Sl No.	Characteristics	Requirement		Test Methods
		Body	Sole	
(1)	(2)	(3)	(4)	(5)
i)	Hardness, IRHD	50 ± 5	60 ± 5	IS 3400 (Part 23/Sec 2)
ii)	Change in hardness after accelerating ageing 100 °C ± 2 °C for 24 h	+5 -2	+5 -2	IS 3400 (Part 4)
NOTES — Reading from 30 IRHD to 95 are approximately the same as those of the shore durometer, Type A.				

## 6.9 Insole

The insole of gum boot and ankle boot shall conform to the requirement given in table 6.

**Table 6 Insole**

(Clause 6.9)

Sl No.	Characteristics	Requirement	Method of test, Ref to
(1)	(2)	(3)	(4)
i)	Thickness, mm , <i>Min</i>	2.0	IS 15298 (Part 1)
ii)	Abrasion resistance, (Conducted on fabric surface of insole)		IS 15298 (Part 1)
	a) Dry 25,600 cycles	No hole formed	
	b) Wet 12,800 cycles	No hole formed	

## 6.10 Leak Proof Test

When the whole footwear is tested in accordance with 5.7 of IS 15298 (Part 1), there shall not be any leakage of air. However, in case of button type ankle boots, no water penetration inside the footwear shall be detected when tested according to IS 15298 (Part 1).

## 6.11 Adhesion Test for Rubberized Textile Upper

Representative samples of width 25 mm ± 5 mm are cut out from the whole footwear along the length of the boot. The rubber and fabric plies are separated by breaking the bond. Test on 2 specimens are carried out in accordance with IS 3400 (Part 5). There shall be no separation at a load of 1.5 kg.

## 7 CHEMICAL REQUIREMENTS

All the components of gum boot and ankle boot which are in direct contact with foot shall comply with Table 1 of IS 17011 for critical substances Category 1 and Category 2 as specified of IS 17011.

## **8 Packing and Marking**

### **8.1 Packing**

The shoes shall be packed as agreed to between the purchaser and the manufacturer. Each individual package shall contain shoes of one size only and may be marked with the following:

- a) Name of the item;
- b) Size, colour, and type;
- c) Best before date,
- d) Identification of the source of manufacture;
- e) Batch number;
- f) Any other marking if so desired.

### **8.2 Marking**

Each boot shall be permanently marked with the following:

- a) Size;
- b) Manufacturer's name or brand name;
- c) Year and month of manufacture; and
- d) Any other statutory marking.

#### **8.2.1 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

**ANNEX A**

(Clause 2)

**LIST OF REFERRED INDIAN STANDARDS**

<b><i>IS/ ISO No.</i></b>	<b><i>Title</i></b>
IS 1638:1969	Specification for sizes and fitting of footwear ( <i>first revision</i> )
IS 2050: 1991	Glossary of terms relating to footwear ( <i>first revision</i> )
IS 3400	Methods of test for vulcanized rubber
(Part 2)	Rubber, vulcanized or thermoplastic
(Sec 2) : 2023/ ISO 48-2:2018	Determination of hardness (hardness between 10 IRHD and 100 IRHD) ( <i>fifth revision</i> )
(Sec 4) : 2022/ ISO 48-4:2018	Indentation hardness by durometer method (shore hardness) ( <i>second revision</i> )
(Part 4):2012/ ISO 188 : 2011	Accelerated ageing and heat resistance ( <i>third revision</i> )
(Part 5): 2022/ ISO 36:2020	Adhesion of rubbers to textile fabrics ( <i>fourth revision</i> )
IS 5557 (Part 2) : 2018	All rubber gum boots and ankle boots Part 2 Occupational purposes
IS 15298	Personal protective equipment
(Part 1): 2024/ ISO 20344 : 2021	Test methods for footwear ( <i>third revision</i> )
(Part 4): 2024	Occupational footwear ( <i>third revision</i> )
IS 17011: 2018	Chemical requirements for footwear and footwear materials