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उत्पाद मैनुअल

पॉलीविनाइल क्लोराइड (पी वी सी) औद्योगिक जूते — विशिष्टि

12254: 2021 के अनुसार

**PRODUCT MANUAL FOR
POLYVINYL CHLORIDE (PVC) INDUSTRIAL BOOTS — SPECIFICATION
ACCORDING TO IS 12254: 2021**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता 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 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 uniformity 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.

1.	मानक संख्या IS No.	:	IS 12254 : 2021
	शीर्षक Title	:	POLYVINYL CHLORIDE (PVC) INDUSTRIAL BOOTS
	संशोधनों की संख्या No. of amendments	:	02
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Toe caps (), Penetration resistance insert (Cl. 5.4.8.3.1), Upper (Cl. 5.5), Lining (5.6), Insole (5.7), Press buttons, Eyelets and Laces (Cl 5.8), Insocks (Cl. 5.9), Closing thread (Cl. 5.10) and Outsole (Cl. 5.11) shall conform to the requirements of respective clauses of IS 12254. Note: This section indicates the requirements for raw material(if specified in the IS)for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.

b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please see Annex - A
c)	नमूने का परिमाण Sample Quantity	:	5 pairs of shoes of each variety (In case samples are sent to a different lab for testing innocuousness of materials, 2 pairs are required to be sent separately) Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	i) Design ii) Protection Level iii) Size and fitting iv) Additional Requirements Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day (on conditioned samples as applicable)		
	1. Size and fittings 2. Height of upper 3. Whole Footwear a. Construction b. Ergonomic feature c. Upper outsole Bond strength d. Leak proofness 4. Toe Caps (except corrosion resistance) 5. Colour 6. Additional requirements for whole footwear (except Resistance to acid and alkali and cold flexing) 7. Upper (except flexing) 8. Lining 9. Insole 10. Press Buttons, Eyelets and Laces 11. Insocks 12. Closing thread 13. Outsole (except flexing)		

14. Chemical Requirement																		
Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies(OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.																		
6.	लाइसेंस का दायरा/Scope of the Licence:																	
	IS 12254 : 2021 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 12254: 2021 with the following scope:																	
	<table><tr><td>Name of the product</td><td>Polyvinyl Chloride (PVC) Industrial boots</td></tr><tr><td>Design</td><td>Type I – Ankle boots [Design B of IS 15298 (Part 2)] and/or Type II – Wellington/gum boots [Design C/D of IS 15298 (Part 2)]</td></tr><tr><td>Protection Level</td><td>Variety 1 – For use as safety footwear (with metallic/non-metallic toecaps) and/or Variety 2 – For use as protective footwear (with metallic/nonmetallic toecaps) and/or Variety 3 – For use as occupational footwear</td></tr><tr><td>Size and fitting</td><td>From 4 to 12 (English size) for adults and fitting G/H (as applicable)</td></tr><tr><td rowspan="5">Additional Requirements</td><td>Without Additional Requirements, or</td></tr><tr><td>With Additional Requirements (as applicable as follows)</td></tr><tr><td>Whole Footwear</td><td>Conductive Footwear Antistatic Footwear Penetration resistance Cut resistance</td></tr><tr><td>Upper</td><td>Cold Flex Resistance</td></tr><tr><td>Outsole</td><td>Resistance to acid and alkali Resistance to fuel oil Cold Flex Resistance</td></tr></table>	Name of the product	Polyvinyl Chloride (PVC) Industrial boots	Design	Type I – Ankle boots [Design B of IS 15298 (Part 2)] and/or Type II – Wellington/gum boots [Design C/D of IS 15298 (Part 2)]	Protection Level	Variety 1 – For use as safety footwear (with metallic/non-metallic toecaps) and/or Variety 2 – For use as protective footwear (with metallic/nonmetallic toecaps) and/or Variety 3 – For use as occupational footwear	Size and fitting	From 4 to 12 (English size) for adults and fitting G/H (as applicable)	Additional Requirements	Without Additional Requirements, or	With Additional Requirements (as applicable as follows)	Whole Footwear	Conductive Footwear Antistatic Footwear Penetration resistance Cut resistance	Upper	Cold Flex Resistance	Outsole	Resistance to acid and alkali Resistance to fuel oil Cold Flex Resistance
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	With Additional Requirements (as applicable as follows)																	
	Whole Footwear	Conductive Footwear Antistatic Footwear Penetration resistance Cut resistance																
	Upper	Cold Flex Resistance																
	Outsole	Resistance to acid and alkali Resistance to fuel oil Cold Flex Resistance																

ANNEX – A

**TO THE PRODUCT MANUAL FOR
POLYVINYL CHLORIDE (PVC) INDUSTRIAL BOOTS AS PER IS 12254: 2021**

GROUPING GUIDELINES

1. Polyvinyl Chloride (PVC) Industrial Boots Have Been classified in following designs, protection level and sizes:
 - i) **Design:**
 - 1 Type I- Ankle Boots [Design B of IS 15298 (Part 2)],
 - 2 Type-II- Wellington/gum boots [Design C and D of IS 15298 (Part 2)].
 - ii) **Protection level:**
 - 1 Variety 1 – For use as safety footwear,
 - 2 Variety 2 – For use as protective footwear,
 - 3 Variety 3 – For use as occupational footwear.
 - iii) Additional Requirements
 - i Whole Footwear
 - 1 Conductive Footwear
 - 2 Antistatic Footwear
 - 3 Penetration resistance
 - 4 Cut resistance
 - ii Upper
 - 1 Cold Flex Resistance
 - iii Outsole
 - 1 Resistance to acid and alkali
 - 2 Resistance to fuel oil
 - 3 Cold Flex Resistance
 - iv) **Sizes and fitting:** 4 to 12 (English Size), fitting G/H
2. For considering grant of licence/inclusion of varieties, one sample of each Design and each Protection level of any size and fitting shall be drawn and tested to cover that design, Protection level and all the sizes and fittings being manufactured.
3. Additional Requirements shall be indicated in the scope of licence only if the sample has been tested for those Additional requirements.

4. However, if certain materials have already been tested (and footwear made from these materials already covered in the scope of licence on that basis), new varieties of footwear may be added in the scope of licence without chemical testing of those materials which have already been tested before, provided that there is no change in the type/nature of the material and/or the source of material. In such cases, the manufacturer seeking relaxation from chemical testing for certain materials, shall declare that there is no change in the type/nature and/or the source of the materials already tested
5. Any change in combinations of components of footwear not having effect either on the scope of Licence or which does not elicit any testing of the footwear of that combination as per above grouping guideline, shall be informed to BIS by Licencee.
6. However, while considering grant of licence/inclusion of additional sizes/designs/varieties, it will be ensured that the applicant/licensee has got the complete manufacturing and testing facilities for all the sizes/fittings, designs and varieties intended to be covered.
7. During operation of the licence, BOs shall ensure that all the samples are tested for all applicable requirements on the product, and sizes/varieties covered in the licence are tested in rotation.

ANNEX– B

**LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)**

Sr. No.	Tests used in with Clause Reference	Test equipment
1	Ergonomic feature, Cl 5.4.2,	treadmill, stairs (as per 5.1.2 of ISO 20344:2021); Smooth metal hinged plate, Clamping device, Sensor, conditioning chamber
2	Upper outsole Bond strength, Cl 5.4.3, Interlayer Bond Strength, Cl 5.11.3,	Tensile testing machine with a chart recorder, clamping jaws for tensile tester, razor or sharp knife, steel scale, sample press, humidity chamber,
3	Slip Resistance, Cl 5.4.4,	A slip resistance test machine as per ISO 13287:2019, arrangement to maintain room temperature at 27+2 °C and requirements, Device for measuring the normal force, conditioning chamber, Sodium lauryl sulphate, ceramic tile floor
4	Leak proofness, Cl 5.4.5,	Water bath, supply of compressed air Pressure sensor, Stopwatch
5	Internal length of toecap, Cl 5.4.6.2, Height of upper, Cl 5.3, Thickness, Cl 5.9, 5.11.1, 5.5.1, 5.7.1,	vernier calliper, micrometer, scale, angle measuring apparatus
6	Corrosion resistance, Cl 5.4.6.3,	Test arrangement as per ISO 22568-1:2019, sodium chloride
7	Impact Resistance, Cl 5.4.6.4,	Impact apparatus, as per ISO 22568-1:2019, Modelling Clay Cylinders, Dial Gauge
8	Compression Resistance, Cl 5.4.6.5,	compression test apparatus as per ISO 22568-1:2019, Modelling Clay Cylinders, Dial Gauge
9	Conductive footwear, Cl 5.4.8.1, Antistatic footwear, Cl 5.4.8.2,	Testing instrument, capable of measuring electrical resistance with SS balls internal electrode and copper external electrode, conductive laquer, Device for measuring the conductive resistance of the lacquer, distilled water, conditioning chamber for dry and wet conditions, arrangement to maintain standard temperature
10	Penetration resistance insert, Cl 5.4.8.3.1,	apparatus as per ISO 7500-1:2018/Apparatus as per Cl 5.1.1 of IS 17275 (Part 1), test nail, scale, vernier calliper
11	Penetration Resistance, Cl 5.4.8.3.2,	apparatus as per ISO 7500-1:2018, test nail, scale, vernier calliper
12	Cut Resistance, Cl 5.4.8.4.1, 5.4.8.4.2, 5.4.8.4.3,	coupe test equipment as per Cl 6.2 of ISO 23388:2018, rubber support, aluminium foil
13	Resistance to acid and alkali, Cl 5.4.8.5,	conditioning chamber, Sulphuric acid, hydrochloric acid, sodium hydroxide, analytical balance, tensile testing machine, durometer, stop watch, arrangement to carry out testing at 27 +- 2°C, micrometer/thickness gauge, vernier calliper, scale
14	Resistance to fuel oil, Cl 5.4.8.6,	2,2,4-trimethylpentane, general purpose reagent, Shore A hardness tester, conditioning chamber, arrangement to maintain standard temperature, vernier calliper scale, balance, distilled water, sinker

15	Tensile Strength, CI 5.5.2,	conditioning chamber, arrangement to maintain standard temperature, tensile testing machine
16	Flexing Resistance, CI 5.5.3,	conditioning chamber, arrangement to maintain standard temperature, Micrometre dial gauge, Flexing machine (for flexing of a rubber upper), micrometer, apparatus for determination of resistance to flexing (ISO 4643:1992, Annex B for polymers (test carried out at $(-5 \pm 2) ^\circ\text{C}$), test chamber
17	Hardness, CI 5.5.4,	durometer, stop watch, arrangement to carry out testing at $27 \pm 2^\circ\text{C}$,
18	Cold Flex Resistance, CI 5.5.5, 5.11.8,	apparatus as per ISO 4643, micrometer, thermometer, timer
19	Tear Strength, CI 5.6.2,	arrangement to maintain standard temperature, acetone, Analytical balance, Glass vial with screw cap, Ultrasonic water bath, Disposable syringe and membrane filter, Glass vial with septum cap, Gas chromatograph with mass selective detector (GC-MS)/Liquid chromatograph with fluorescence detector (LC-FLD), Capillary column for gas chromatograph, (5 %-phenyl)-methylpolysiloxane phase, non-polar, bonded and cross-linked, low bleed, C18 reverse phase column for liquid chromatograph, methanol,
20	Abrasion resistance, CI 5.6.3,	test apparatus defined in the ISO 12947-1:1998 (Martindale Method), Reference abradant, Fabric punch or press cutter, Weight, thickness guage, conditioning chamber
21	Adhesion of lining with Upper, CI 5.6.4,	Testing machine as per IS 3400 (Part 5) with Autographic recorder, Cutting tool
22	Abrasion resistance, CI 5.7.2, 5.9.2,	Finger Abrasion Tester as per cl. 7.3.2.1 IS 15298 part 1, Wool pads, Abradant fabric, Conditioning Chamber, Distilled Water, thickness guage
23	Water absorption and desorption, CI 5.7.3, 5.9.3,	conditioning chamber, Water Absorption & Desorption Tester as per 7.2.2 of IS 15298 part 1, Brass Roller, Platform, IS 15298 part 1, Cotton gauge, Water Supply through flow meter, Press, Knife, Balance, Clock, Silicone grease
24	Breaking load of laces, CI 5.8.2,	tensile-testing machine according to ISO 7500-1
25	Closing thread , CI 5.1,	Tensile Testing Machine & Drying oven as per Cl. 5 of IS 4910 (Part 3)
26	Outsole density, CI 5.11.2,	Balance, Balance Straddle, Beaker, Copper Wire, Conditioning Chamber
27	Tear Strength, CI 5.11.4,	apparatus as per ISO 34-1:2015, Method A, Dies, Nick cutter, Testing machine
28	Abrasion resistance, CI 5.11.5,	Abrasion machine as per 5.1 of IS 3400 (Part 3)/ ISO4649, abrasive sheet, Hollow drill, balance, standard reference compounds. Conditioning chamber, arrangement for keeping ambient temperature, standard reference compounds
29	Flexing Resistance, CI 5.11.7,	The apparatus described in ISO 17707:2005, Cutting tool, Measuring magnifier, conditioning chamber
30	Volatility, CI 6.1,	oven with constant air circulation, dissicator
31	Lead Content, CI 6.2,	Nessler cylinders, P-Nitrophenol indicator Sol, Dil Hydrochloric acid,

		hydrogen sulphide solution, Standard lead solution, whatman filter paper
32	Requirements as per table 1 of IS 17011, Cl 6.3,	As per IS 17011

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

For the guidance of manufacturers, the recommended definition of control unit is: Finished PVC Industrial Boots of one combination as per the scope of licence (Design, protection level, Additional requirement, size and fitting) produced in a day from the same consignment of raw material.

1.3.1 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.2 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

a) **PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each piece of a pair of the PVC boot and its outer packaging (if applicable) provided always that the boot so marked conforms to each requirement of the specification.

2.5 Packing and Marking shall be done as per the Indian Standard.

2.6 Additional Marking requirements: The boot or its packaging shall also be marked with the following additional requirement

b) “For BIS certification details please visit www.bis.gov.in”

3. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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
(ONLY FOR GUIDANCE PURPOSE)

-1				-2	-3		
Test Details				Test equipment requirement R: Required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirement	Test Method			No. of Samples	Frequency	Remarks
		Clause	Reference				
5.2	Size and fittings	Table 1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.3	Height of upper	6.2/ Table 4	IS 15298 (Part 1) / IS 15298 (Part 2).				
5.4	Properties of Whole Footwear						
5.4.1	Construction	-	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer		
5.4.2	Ergonomic feature	5.1 /4.3 Table 2	IS 15298(Part 1)	R	One	Once a week	All sizes & varieties being manufactured shall be tested in rotation.
5.4.3	Upper outsole Bond strength	5.2	IS 15298(Part 1)	R	One	each control unit	-do-
5.4.4	Slip Resistance	5.11	IS 15298(Part 1)	S	One	once in a month	-do-
5.4.5	Leak proofness	5.7	IS 15298(Part 1)	R	One	Once a week	-do-
5.4.6	Toe Caps (Applicable for variety 1 and variety 2)						
5.4.6.1	General	-	IS 12254	R	One	each control unit	-do-

5.4.6.2	Internal length of toecap	5.3	IS 15298 (Part 1)	R	One	Once a week	-do-
5.4.6.3	Corrosion resistance (Applicable for metallic toecaps)	Annex E	IS 5852 (Part 1)	S	One	Once in a month	-do-
5.4.6.4	Impact Resistance	5.4	IS 15298 (Part 1)	R	One	Once a week	-do-
5.4.6.5	Compression Resistance	5.5	IS 15298 (Part 1)	R	One	Once a week	-do-
5.4.7	Colour	5.4.7	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer		
5.4.8	Additional requirements for whole footwear (If required by purchaser)						
5.4.8.1	Conductive footwear	5.1	IS 15298 (Part 1)	S	One	Once in a month	All sizes & varieties being manufactured shall be tested in rotation.
5.4.8.2	Antistatic footwear	5.1	IS 15298 (Part 1)	S	One	Once in a month	
5.4.8.3.1	Penetration resistance insert	-	IS 17275 (Part 1) or IS 17275 (Part 2)	R	One	Once a week	-do-
5.4.8.3.2	Penetration Resistance	5.8.2	IS 15298 (Part 1)	R	One	Once a week	-do-
5.4.8.4.1, 5.4.8.4.2, 5.4.8.4.3	Cut Resistance	6.14	IS 15298 (Part 1)	R	One	Once a week	-do-

5.4.8.5	Resistance to acid and alkali	Annex B	IS 12254	R	One	Once a week	-do-
5.4.8.6	Resistance to fuel oil	8.6.1/8.6.2	IS 15298 (Part 1)	R	One	Once a week	-do-
5.5	Upper						
5.5.1	Material	5.5.1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.5.1	Thickness	6.1	IS 15298 (Part 1)	R			
5.5.2	Tensile Strength	6.4	IS 15298 (Part 1)	R	One	Once a week	All sizes & varieties being manufactured shall be tested in rotation.
5.5.3	Flexing Resistance	6.5	IS 15298 (Part 1)	S	One	Once in a month	-do-
5.5.4	Hardness	-	IS 12240 (Part 2)	R	One	Once a week	-do-
5.5.5	Additional – Cold Flex Resistance (If required by purchaser)		ISO 4643	S	One	Once in a month	-do-
5.6	Lining (Variety 1 and 2-						
5.6.1	Lining Material	5.6.1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.6.2	Tear Strength	6.3	IS 15298 (Part 1)	S	One	Once in a month	All sizes & varieties being manufactured shall be tested in rotation.
5.6.3	Abrasion resistance	6.12	IS 15298(Part 1)	S	One	Once in a month	-do-

5.6.4	Adhesion of lining with Upper	-	IS 3400 (Part 5)	R	One	Once a week	-do-
5.7	Insole						
5.7.1	Material & thickness	5.7.1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.7.2	Abrasion resistance	7.3	IS 15298 (Part 1)	S	One	Once in a month	-do-
5.7.3	Water absorption and desorption	7.2	IS 15298 (Part 1)	S	One	Once in a month	-do-
5.8	Press Buttons, Eyelets and Laces (Applicable for Type 1 Boots)						
5.8.1	Press Buttons	5.8.1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.8.2	Eyelets and laces – Material and size	5.8.2	IS 12254	R			
5.8.2	Breaking load of laces	-	IS 1969(Part 1) Or IS 1969 (Part 2)	S	One	Each Consignment	
5.9	Insocks						
5.9	Thickness	5.9	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.9.1	Material	5.9.1	IS 12254	R			
5.9.2	Abrasion resistance	6.12	IS 15298 (Part 1)	S	One	Once in a month	All sizes & varieties being manufactured shall be tested in rotation.
5.9.3	Water absorption and desorption	7.2	IS 15298 (Part 1)	S	One	Once in a month	do-
5.10	Closing thread (If used)	-	IS 4910 (Part 3)	S	One	Each Consignment	

5.11	Outsole						
5.11.1	Material	5.11.1	IS 12254	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.11.1	Thickness	5.11.1	IS 12254	R			
5.11.2	Outsole density	-	IS 12240 (Part 3)	R	One	Once a week	All sizes & varieties being manufactured shall be tested in rotation.
5.11.3	Interlayer Bond Strength	5.2	IS 15298 (Part 1)	R	One	Once a week	-do-
5.11.4	Tear Strength	8.2	IS 15298 (Part 1)	R	One	Once a week	-do-
5.11.5	Abrasion resistance	8.3	IS 15298 (Part 1)	R	One	Once a week	-do-
5.11.6	Sole hardness		IS 12240 (Part 2)	R	One	Once a week	-do-
5.11.7	Flexing Resistance	8.4	IS 15298 (Part 1)	S	One	Once a month	-do-
5.11.8	Additional – Cold Flex Resistance (If required by purchaser)		ISO 4643	S	one	Once in a month	-do-
6	Chemical Requirement						
6.1	Volatility	-	IS 12240 (Part 4)	R	One	Once a week	
6.2	Lead Content	-	IS 12240 (Part 5)	S	One	Each consignment of raw material	

6.3	Requirements as per table 1 of IS 17011	-	IS 17011	S	One	Each consignment of raw material	At least once every six months or whenever there is any change in source of raw material.
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