



**PRODUCT MANUAL
FOR SAFETY RUBBER CANVAS BOOTS FOR MINERS
ACCORDING TO IS 3976:2018**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 licence/certificate.

1.	Product	:	IS 3976:2018
	Title	:	Safety Rubber Canvas Boots for Miners
	No. of Amendments	:	0
2.	Sampling Guidelines:		
a)	Raw material	:	No specific requirement
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	4 Pairs
3.	List of Test Equipment	:	Please refer ANNEX –B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX –C
5.	Possible tests in a day :		
	Please refer ANNEX – D		
6.	Scope of the Licence : (Use separate annexure if required)		
	“Licence is granted to use Standard Mark as per IS 3976:2018with the following scope:		
	Name of the product	Safety Rubber Canvas Boots for Miners	
	Type	Type-1 or Type-2	
	Sizes	As per requirement	
	Any other aspect required as per the Standard	Resistance to Fuel, Resistance to Electricity	

ANNEX A

GROUPING GUIDELINES

Grouping guidelines for IS 3976:2018

1. All Safety Rubber Canvas Boots for Miners have Been covers following types, designs and sizes:

i) Types:

Type 1- Boots are preferred where there is water accumulation or in slurry conditions of mining. The level of water in slurry conditions shall not be more than ankle height;

Type-2- Boots are preferred for use in dry conditions of mining.

ii) Design- B & C (Refer Cl.5.1 &5.6 of IS **3976:2018**)

iii) Sizes:

French	English
36 and Below	Upto 3½
37 and 38	4 to 5
39 and 40	5½ to 6½
41 and 42	7 to 8
43 and 44	8½ to 10
45 and above	10½ and above

2. To Apply For Grant of Licence and Inclusion, the applicant /licensee should declare the variety Classification, type and design of the all Safety Rubber Canvas Boots for Minersand accordingly following grouping guideline is to be followed for grant of licence and Inclusion.

Group	Type	Design	Size English/ French	Sample To Be Tested
1	Either 1 or 2 (If for Both)*	Either B or C (If for Two, more or all) **	Upto 5/Upto 38	One sample ***
2	Either 1 or 2 (If for Both)*	Either B or C (If for Two, more or all) **	5 ½ to 8/39 to 42	One sample ***
3	Either 1 or 2 (If for Both)*	Either B or C (If for Two, more or all) **	8 ½ and above/43 and above	One sample ***

Notes

a) * If the Applicant /Licensee applies for both types i.e 1 as well as 2, testing to be done for each types separately.

b) **If the Applicant /Licensee applies for two or more Design, testing to be done for each Design separately.

c) ***Samples of any size can be taken for considering other sizes in the same group, however manufacturing and testing facility for each size must be verified.

3. However, while considering grant of licence/inclusion of additional sizes/designs/varieties/types, it will be ensured that the applicant/licensee has got the complete manufacturing and testing facilities for all the sizes and designs intended to be covered.

4. During operation of the licence, BO will ensure that all the sizes/designs/varieties/types covered in the licensee are tested in Rotation. The above guidelines may be followed for grant of licensee as well as inclusion of new Variety.

ANNEX B

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Water Vapour Permeability, Upper Material Consolidation Test, Upper Material Tear Strength, Compact Insole/Insocks/Counter Stiffener Lining Tear Strength, Coated Binding Breaking Strength (5.2.1.4,5.2.1.1,5.2.1.2,5.2.2,5.2.3,5.2.6)	Humidity Chamber
2	Resistance to Hot Contact of Sole Heel (6.4)	Resistance to Hot Contact Tester Apparatus
3	Upper Material Consolidation Test, Upper Material Tear Strength, Compact Insole/Insocks/Counter Stiffener Lining Tear Strength, Coated Binding Breaking Strength, Reinforcing Material Tear Strength, Lace Breaking Load, Upper Outsole Bond Strength, Upper Consolidation Test, Compact Outsole Tear Strength (5.2.1.1,5.2.1.2,5.2.2,5.2.3,5.2.4,5.2.6,5.2.8,5.8, 5.10,6.3)	Universal Tensile Testing Machine
4	Inner Layer Abrasion Resistance, Compact Insole/Insocks/Counter Stiffener Abrasion Resistance (5.2.1.5, 5.2.2.1)	Martindale Abrasion Tester
5	Compact Outsole Abrasion Resistance(6.1)	DIN Abrasion Resistance Tester for Outsole
6	Compact Sole Heel Hardness (5.2.5.2)	Shore "A" Hardness Tester, Durometer IRHD
7	Compact Outsole Flexing Resistance(6.2)	Bennewart Flex tester For Outsole with Piercing Needle 2 mm
8	Upper Flexing Test(5.2.1.3)	Upper Leather Flexing Machine (Bally Type), Flexing M/C (Dematia)
9	Compact Sole Heel Ageing, Whole Footwear Ageing (5.2.5.2,5.2.5.3)	Accelerated Ageing Oven Tester for Rubber Size 18' x 18" x 18"
10.	Counter Stiffener Thickness, Side Foxing Thickness, Insocks Thickness (5.2.10, 5.3.6,	Thickness Gauge

	5.3.7)	
11	Safety Toe Cap Impact Resistance, Footwear Impact Performance(3.5,3.6,5.7)	Impact Tester With all accessories Steel Striker Wedge Metal block Modeling Clay die Dial Gauge(Baker) Torque Wrench Clamping Screw, Clamping Device with Steel Plate with Hardness-60 HRC Aluminum Foil
12	Energy Absorption Test (5.13)	Energy absorption Test Apparatus
13	Digital Weighing Scale, Capacity 2 kg (5.5)	Mass of the Footwear
14	Digital Weighing Scale, Capacity 1mg/300gm (6.1 & TABLE 4 OF IS 3976:2018)	Sewing Thread Weight/Length & Water Vapour Permeability Test
15	Height of Upper, Coated Binding Material, Width, Reinforcing Material Width, (5.6)	Steel Scale
16.	Impact Test of Steel Toe & Performance Test of Footwear, Length of the Lace (5.7, 5.2.8.1)	Measurement Tape
17	Water Vapour Permeability Test(5.2.1.4)	Apparatus for Water Vapour Permeability Testing – Absorption /Desorption
18	To maintain Temperature and Humidity of Room	Air Conditioner, Dehumidifier
19	Compact Sole Heel Thickness, Eyelest Collar Dia, Foxing Thickness, Compression Resistance of Toe & Footwear, Consolidation Test, Internal Length of Toe Cap (5.2.5.4, 5.2.9, 5.3.6, 5.12, 3.5,3.6,5.11,5.10, 5.12)	Vernier Calliper
20	Drill Machine with .50 HP Motor with Chuck, Digital Specific Gravity Balance, Specimen Cutting Press(Hydraulic Type), Certified Rubber Testing Pirce for Abrasion Test of Outsole, Test Tube, Silica Gel, Dessicator, Test Tube Stand, Plasticine, Silicon Grease, Stop Watch, Hygro Meter, Spirit Lamp, Filter Paper, Tensile Strength Tear Die, Angular Tear Die, Cutting Die for test Specimen, Abrasive Cloth, Special Jig Punch for Compression	General requirements

The above list is indicative only and may not be treated as exhaustive.

ANNEX C

Scheme of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – The Standard Mark as given in Schedule of the license shall be incorporated, on the label attached with Safety Rubber Canvas Boots for Miners and the labeling/ marking and packing shall be done as per the provision of the Indian Standard, provided always the Safety Rubber Canvas Boots for Miners thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked as follows: “For details of BIS certification please visit [www bis.gov.in](http://www.bis.gov.in)”

4. CONTROL UNIT – For the purpose of this scheme, all finished boots of one type vulcanized at a time shall constitute a control unit. On the basis of test results, decision shall be taken regarding conformity of the control unit as a whole to the requirements of the specification.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – 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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5.1, 5.1.1	Design, Fittings		IS 1638	R	One pair of each size	Each Control unit	
5.2	Material						
5.2.1	Upper	5.10 5.4.3 5.4.6 5.5.2	IS 3976 IS 15298 (Pt 2) IS 15298 (Pt 2) IS 15298 (Pt 2)	S	Two	Each consignment of material	
5.2.2	Compact insole/compact insoles/counter stiffener lining	5.6.1 6.12	IS 15298 (pt 2) IS 15298 (Pt 1)	S	Two	Each consignment of material	
5.2.3	Coated binding material	Table 1	IS 3976	S	Two	Each consignment	
5.2.4	Reinforcing material			S	Five	Each consignment	
5.2.5, 5.2.5.1 to 5.2.5.4	Compact sole heel	Table 2	IS 3976	S	One	Each consignment	
5.2.6	Thread for upper	Table 4,	-do-	S	One	-do-	

	closing	Annex B					
5.2.7	Safety toe cap	3.6	-do-	S	Ten	-do-	
5.2.8	Laces	Annex B, C	-do-	S	Three	-do-	
5.2.9	Eyelets			S	Five	-do-	
5.2.10	Counter stiffener			S	Five	-do-	
5.3	Construction			R	Each Pair	Each Pair	
5.4	Finish			R	-do-	-do-	
5.5	Mass			R	-do-	-do-	
5.6	Height of upper	6.2	IS 15298 (Pt 1)	R	5 pair of s each size	Each Control Unit	
5.7	Performance Test	5.4	-do-	R	One pair	Each Control Unit	
5.8	Upper/outsole bond strength	5.2	-do-	R	-do-	Each Control Unit	
5.9	Sole inter layer bond strength for bi-polymer and bi-density sole	5.2	-do-	R	-do-	Each Control Unit	
5.10	Consolidation test	-	IS 3400(Pt.5)	R	-do-	Each Control Unit	Pl see Note.4

5.11	Compression resistance	5.5	IS 15298 (Part1)	R -do-	-do-do-	Each Control Unit	
5.12	Internal length of toe cap	5.3	-do-	R	-do-	Each Control Unit	
5.13	Energy absorption test	5.14	-do-	R	-do-	Each Control Unit	
6.1	Abrasion resistance of compact outsole	8.3	-do-	R	-do-	Each Control Unit	
6.2	Flexing resistance of compact outsole	8.4	-do-	R	-do-	Each Control Unit	
6.3	Tear Strength of compact outsole	8.2	-do-	R	-do-	Each Control Unit	
6.4	Resistance to hot contact-sole heel	8.7	-do-	R	-do-	Each Control Unit	
6.5	Hydrolysis	8.5 5.8.5	IS15298 (Part1) IS 15298 (Part2)	R	-do-	Each Control Unit	
7	Additional properties, if required by purchaser i) Resistance to fuel ii) Resistance to electricity	8.6.1 6.2.2.3	IS 15298 (Part2) IS 15298 (Part2)	S	PI, see Note 3		
8	Chemical requirements	Table 6	IS 3976	S	One	Every Month	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval to BO Head.

Note-3: For additional properties as per clause 7 of IS 3976 i.e. resistance to fuel and electricity which are to be tested if required by purchaser, the frequency/levels of control may be as agreed between purchaser and supplier.

Note-4: Whenever more than one size of boots are manufactured at least two samples belonging to different sizes shall be tested from each control unit in such a way that all the sizes of boots manufactured are tested in a day.

Annex-D
Possible test in a day

- 1) Dimension requirements**
- 2) Mass**