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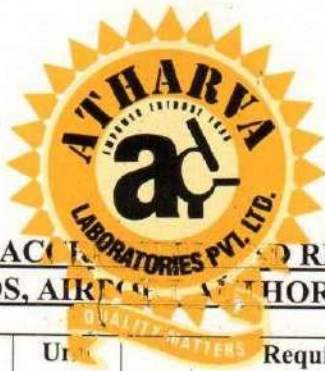
### Fireman's Boot 3995

Supplier Name : MAYUR LEATHER PRODUCTS LTD.  
Supplier Address : B-5, Vrindavan Apartments, Vrindavan Bihar, Kings Road, Jaipur-302019  
Contact Person : Mr. S.K.Neogi  
Test Report No. : A1606193  
Sample description : THE SUBMITTED SAMPLE SAID TO BE SAFETY FIREMAN'S BOOT COLOR MARKED AS BLACK  
Report Issue Date : 30.08.2016  
Date of Entry : 29.06.2016  
STYLE NO. : Fireman's Boot 3995 Design C, Type II Hi<sub>3</sub>, Classification I  
Size : 39, 43 & 46  
CATEGORY : SRA  
Material description : Upper- Leather  
Tongue- Leather  
Quarter Lining-Textile + foam  
Vamp Lining- Textile + foam  
Insole- Antistatic strobil  
In sock- Pre moulded febtex + EVA  
Outsole- Rubber Nitrile  
Toe cap - Fibre toe cap  
Job Start Date : 29.06.2016  
Specification : BS EN 15090-2012  
Job Completion date : 30.08.2016  
Sampling Method : Supplied By Party  
Conditioning : Samples conditioned at 23±2 °C and 50±5 % RH for 48 Hours.  
Total pages : 10  
Laboratory Environment Temperature: 23 ± 2°C  
Relative Humidity : RH 50 ± 5 %

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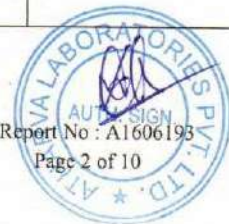
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Clause of EN ISO 20345	Name of the Test	Size	Unit	Requirement	Obtained Value	Evaluation
4.1 and 6.1 of EN 15090	<b>Basic : Type II Hi<sub>3</sub>, Classification I</b>					
5.2.1, Table-4	Height of upper (Safety fireman's boot 3995)	39 43 46	mm	Min 172 Min 185 Min 192	222.0 250.0 265.0	OK OK OK
5.3.4	<b>Specific ergonomic features</b> (EN ISO 20344:2011 Clause 5.1)					
STYLE	<b>Safety fireman's boot 3995</b>					
1.	Is the inside surface of the footwear free from rough, sharp or hard areas that caused you irritation or injury?				Meet	OK
2.	Are there no pinch points caused by the toecap or the edge covering of the toecap?				Meet	OK
3.	Is the footwear free of features that you consider to make wearing the footwear hazardous?				Meet	OK
4.	Can the fastening be adequately adjusted? (if necessary)				Meet	OK
5.	Can the following activities be performed without problems: Walking (for 5 min at a speed approx. 6 Km/h)				Meet	OK
	Climbing stairs (climb and descend 17±3 stairs for 1 min)				Meet	OK
	Kneeling/crouching down (figure 1 of EN ISO 20344)				Meet	OK
6.2.5	Water resistance	39 43 46	cm <sup>2</sup>	Total wetted area inside the footwear shall not be greater than 3	2.4 2.2 2.3	OK OK OK
5.2.1	<b>Design</b> According to figure-3 of ENISO 20345:2011				<b>Design C</b>	OK
5.2.3	Seat region	39 43 46		The seat region shall be closed. In this area of the upper, below the minimum height given for <b>Design A</b> in Table 10, There shall be no holes other than to form seams.	Confirm Confirm Confirm	OK OK OK
5.3	<b>Whole footwear</b>					
5.3.1	<b>Sole performance (Safety Fireman's Boot 3995)</b>					
5.3.1.1	Construction	39 43 46		Insole cannot be removed without damaging the footwear	Cannot be removed without damaging the footwear for all	OK OK OK
5.3.1.2	Upper/outsole bond strength	39 43 46	N/mm	4.0 N/mm (Min)	4.9 5.3 5.2	OK OK OK
6.2.3.1 (6.3.1 of EN 15090)	Heat Insulation of the sole complex (Temperature increases after 10 min)	39 43 46	°C	Shall not be greater than 42	20 21 20	OK OK OK

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**Laboratory : B-100, Phase-II, Noida-201305 (U.P.) India**

**Regd. Office : 29, Plot No. 28, Sector-4, Dwarka, Delhi-110075, CIN No. (U24119DL2007PTC158494)**

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Clause of EN ISO 20345	Name of the Test	Size	Upper Requirement	Obtained Value	Evaluation	
5.3.5	Slip Resistance Ceramic floor with SLS (SRA)	39	Condition A (Forward Heel Slip) $\geq 0.28$ Condition B (Forward Flat Slip) $\geq 0.32$	0.32	OK	
		43		0.34	OK	
		46		0.31	OK	
				0.34	OK	
				0.32	OK	
			0.35	OK		
6.2.4	Energy absorption of seat region	39	J	20 (Min.)	28.1 (R), 27.6(L)	OK
		43			24.9(R), 25.2(L)	OK
		46			27.7(R), 28.2(L)	OK
6.3.3. of EN ISO 5090	Flame resistance i) After flame time ii) After Glow time	39	Not More than 2s Not More than 2s	0 0 (No Cracking, melting, no sign of outsole crack higher than 10mm long & 3mm deep. No sign of upper outsole separation of more than 15mm long & 5mm wide was observed after test ) for all	OK	
		43			OK	
		46			OK	
6.2.1	Penetration resistance	39	N	Min 1100 Min 1100 Min 1100	1250.2	OK
		43			1229.5	OK
		46			1206.5	OK
5.3.2	<b>Toe protection (Fibre Toe Cap) (Safety fireman's boot 3995)-GENERAL</b>					
5.3.2.1	Covering Beneath the toe-cap	39	mm	5mm (Min)	5.7	OK
		43			5.8	OK
		46			5.9	OK
	Covering in opposite direction	39	mm	10mm (Min)	11.9	OK
		43			11.8	OK
		46			11.8	OK
	Thickness of scuff resistance	39	mm	1.0 mm (min)	1.1	OK
		43			1.2	OK
		46			1.1	OK
Remarks-Vamp lining present in all sizes.						
5.3.2.2 Table-5	Internal length of toecaps	39	mm	38 (Min.) 40 (Min.) 42 (Min.)	41.1	OK
		43			43.4	OK
		46			44.3	OK
5.3.2.3 Table-6	Impact Resistance (at 200J)	39	mm	13.5(Min.) 14.5(Min.) 15.0(Min.)	15.3(R), 15.4 (L)	OK
		43			16.5(R), 16.7(L)	OK
		46			16.9(R), 16.8(L)	OK
5.3.2.4 Table-6	Compression resistance of safety footwear (at 200J)	39	mm	13.5(Min.) 14.5(Min.) 15.0(Min.)	15.2(R), 15.4(L)	OK
		43			16.4(R), 16.8(L)	OK
		46			17.3(R), 17.8(L)	OK

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Clause of EN ISO 20345	Name of the Test	Size	Units	Requirement	Obtained Value	Evaluation
<b>Electrical properties(Safety Fireman's Boot 3995)</b>						
(6.6.3 of EN 15090)	Antistatic footwear Dry condition	39	$\Omega$	Electrical resistance shall be above 100 K $\Omega$ Ohms and below 1000 M $\Omega$ Electrical properties	180 M $\Omega$	OK
		43			200M $\Omega$	OK
		46			220 M $\Omega$	OK
(6.6.3 of EN 15090)	Antistatic footwear Wet condition	39	$\Omega$	Electrical resistance shall be above 100 K $\Omega$ Ohms and below 1000 M $\Omega$ Electrical properties	50 M $\Omega$	OK
		43			90 M $\Omega$	OK
		46			100 M $\Omega$	OK
<b>Accessories(Zipper)(Safety Fireman's Boot 3995)</b>						
(6.8.1 of EN 15090)	Construction	39	mm	The zipper shall have an interlocking mechanism	Conform	OK
		43				
		46				
(6.8.2 of EN 15090)	Puller attachment strength	39	N	250 (Min.)	475.8	OK
		43			498.3	OK
		46			430.1	OK
6.8.3 of EN 15090)	Lateral strength	39	N	500 (Min.)	1021.3	OK
		43			990.8	OK
		46			1021.2	OK
<b>5.4 Upper - Leather (Safety fireman's boot 3995)</b>						
5.4.3 Table -12	Tear strength	39	N	Leather: 120(Min.)	178.2	OK
		43			189.2	OK
		46			188.2	OK
5.4.4 Table -13	Tensile strength (Leather)	39	N/mm <sup>2</sup>	15 (Min.)	20.2	OK
		43			19.8	OK
		46			21.2	OK
5.4.6	Water vapour permeability	39	mg/(c m <sup>2</sup> .h)	0.8(Min.)	1.1	OK
		43			1.2	OK
		46			1.3	OK
ii)	Water vapour coefficient	39	mg/cm <sup>2</sup>	15(Min.)	27.9	OK
		43			28.5	OK
		46			28.0	OK
5.4.7	pH value	39	--	3.2( Min), If pH value below 4 the difference figure shall be less than 0.7	5.5	OK
		43			5.6	OK
		46			5.6	OK
5.4.9	Chromium VI Content	39	PPM	Shall not be less than 3.0	Not detected	OK
		43			Not detected	OK
		46			Not detected	OK

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Clause of EN ISO 20345	Name of the Test	Size	Unit	Requirement	Obtained Value	Evaluation
6.3	<b>Water penetration and water absorption (Safety Fireman's Boot 3995)</b>					
	Water absorption	39	%	30 (Max)	16.3	OK
		43			15.9	OK
		46			16.1	OK
	Water penetration after 60 min	39	gm	0.2(Max)	0.14	OK
		43			0.13	OK
46		0.14			OK	
(6.3.2 of EN 15090)	Radiant Heat	39	°C	Temperature increase ≤ 24	22	OK
		43			21	OK
		46			22	OK
		No Melting no separation of layer observed after test for all				
6.3.3. of EN ISO 5090	Flame resistance i)After flame time ii)After Glow time	39		Not More than 2s Not More than 2s	0	OK
		43			0	OK
		46			(No Cracking, melting, no sign of outsole crack higher than 10mm long & 3mm deep. No sign of upper outsole separation of more than 15mm long & 5mm wide was observed after test) for all	OK



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Clause of EN ISO 20345	Name of the Test	Size	Unit	Requirement	Obtained Value	Evaluation
5.5	<b>Lining (Safety Fireman's Boot 3995)</b>					
A.	<b>Vamp lining: Non-woven</b>					
5.5.1 Table-15	Tear strength	39 43 46	N	15 N (Min.)	32.5 30.6 32.4	OK OK OK
5.5.2	<b>Abrasion resistance (Safety Fireman's Boot 3995)</b>					
i)	Dry	39 43 46	Cycles	Shall not develop any holes before 25600 cycles	No Holes No Holes No Holes	OK OK OK
ii)	Wet	39 43 46	Cycles	Shall not develop any holes before 12800 cycles	No Holes No Holes No Holes	OK OK OK
5.5.3	<b>Water vapour permeability and coefficient (Safety Fireman's Boot 3995)</b>					
i)	Water vapour permeability	39 43 46	mg/(cm <sup>2</sup> .h)	2.0 (Min.)	8.1 8.3 8.2	OK OK OK
ii)	Water vapour coefficient	39 43 46	mg/cm <sup>2</sup>	20 (Min.)	105.9 106.7 104.5	OK OK OK
B.	<b>Quarter lining (Safety Fireman's Boot 3995)</b>	Same as vamp lining				
5.6	<b>Tongue Leather(Safety Fireman's Boot 3995)</b>					
5.6.1	Tear strength	39 43 46	N	Leather: 36(Min.)	85.6 82.9 87.2	OK OK OK
5.6.2	pH value	39 43 46	--	3.2( Min), If pH value below 4 the difference figure shall be less than 0.7	5.1 4.9 5.0	OK OK OK
5.6.3	Chromium VI Content	39 43 46	PPM	Shall not be less than 3.0	Not detected Not detected Not detected	OK OK OK

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Clause of EN ISO 20345	Name of the Test	Size	Unit	Requirement	Obtained Value	Evaluation
5.7	<b>Insole/Insock (Full Insock removable, Water Permeable) (Safety Fireman's Boot 3995)</b>					
A	<b>Insole</b>					
5.7.1	Thickness	39 43 46	mm	Not less than 2.0	2.2 2.1 2.1	OK OK OK
5.7.4.1	Abrasion resistance	39 43 46	--	There shall no more severe damage before 400 cycles	No damage No damage No damage	OK OK OK
B	<b>Insock</b>					
5.7.4.2	<b>Abrasion resistance Insock</b>					
i)	Dry	39 43 46	Cycles	Shall not develop any holes before 25600 cycles	No damage No damage No damage	OK OK OK
ii)	Wet	39 43 46	Cycles	Shall not develop any holes before 12800 cycles	No damage No damage No damage	OK OK OK
5.8	<b>Outsole : (Safety Fireman's Boot 3995) Rubber</b>					
5.8.1 (6.7.1 of EN 15090)	Design	39 43 46	--	The cleat design shall be such that there are no continuous linear transverse valleys across the sole.	Conform Conform Conform	OK OK OK
5.8.1.1, Table -17	Thickness of Cleated Outsole	39 43 46	mm	$d_1 \geq 4$ $d_2 \geq 2.5$	$d_1 = 6.9$ $d_2 = 4.1$ $d_1 = 7.2$ $d_2 = 3.9$ $d_1 = 6.9$ $d_2 = 3.8$	OK OK OK OK OK OK
5.8.1.2	Cleated Area	39 43 46	--	0.45xL (Min) at Fore Part 0.25xL (Min) at Heel Part	0.52 L 0.32 L 0.53 L 0.33 L 0.54 L 0.33 L	OK OK OK OK OK OK

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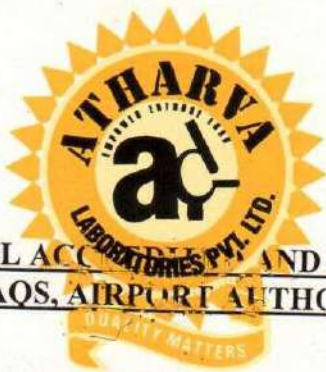
Clause of EN ISO 20345	Name of the Test	Size	Unit	Requirement	Obtained Value	Evaluation
5.8.1.3, Table -17 (6.7.2 of EN 15090)	Cleat Height	39	mm	$d_2 \geq 2.5$	4.1	OK
		43			3.9	OK
		46			3.8	OK
(6.7.3 of EN 15090)	Cleat height at waist area	39	mm	Min 1.5	2.8	OK
		43			2.7	OK
		46			2.5	OK
(6.7.4 of EN 15090)	Heel breast	39	--	The outsole shall have an inclined -breast heel, distance 'a' shall be at least 35 mm, angle shall be b/w $90^\circ$ & $120^\circ$ & Dimension 'b' shall be at least 10 mm	Conform	OK
		43			Conform	OK
		46			Conform	OK
5.8.2	Tear strength	39	kN/m	8 (Min.) of Density $>0.9 \text{ g/cm}^3$	8.5	OK
		43			8.9	OK
		46			8.3	OK
5.8.3	Abrasion	39	$\text{mm}^3$	150 $\text{mm}^3$ (Max) for density of outer sole $>0.9 \text{ g/cm}^3$	125.2	OK
		43			134.2	OK
		46			130.9	OK
5.8.4	Flexing resistance	39	mm	Cut growth shall not be $<4$ before 30000 Cycles	3.1	OK
		43			2.9	OK
		46			3.0	OK
6.4.2	Resistance to fuel oil	39	%	Increases in volume shall not greater than 12	1.5	OK
		43			1.8	OK
		46			4.7	OK
6.4.1	Resistance to hot contact	39	--	Shall not melt, shall not develop any crack when bent around the mandrel	No melt, no	OK
		43			develop any crack	OK
		46			for all	OK



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Sample: Toe cap (Non- Metallic) (Safety Fireman's Boot 3995) 5.3.2.5.2

Sl. No.	Name of the Test	Test Method	Size	Unit	Specified Requirements	Obtained value
<b>Environmental Treatments, Clause 5.3.2.5.2</b>						
1	Finishing	BS EN 12568:2010, C- 4.2.1	39	--	Toe caps shall be finished so as to be free from surface marks or defects and shall be free from burrs and sharp edges and defects of splitting or delaminating between material layers.	Toe caps are free from surface marks, defects, burn mark, sharp edge and splitting or delamination between material layer.
			43			Toe caps are free from surface marks, defects, burn mark, sharp edge and splitting or delamination between material layer.
			46			Toe caps are free from surface marks, defects, burn mark, sharp edge and splitting or delamination between material layer.
2	Width of Flange	BS EN 12568:2010, C- 4.2.2.2	39	mm	10 (Max) 10 (Max) 10 (Max)	6.5
			43			7.8
			46			8.2
<b>3 Impact Resistance after 5 Environmental Treatments, C-4.4</b>						
i)	Impact Resistance (Effect of High Temperature) at 200 J	BS EN 12568:2010, C- 5.4.2	39	mm	20.0 (Min) 21.5 (Min) 22.0 (Min)	23.4(R), 23.6(L) (No Crack)
			43			23.6(R), 23.2 (L) (No Crack)
			46			26.4(R), 23.6(L) (No Crack)
ii)	Impact Resistance (Effect of low Temperature) at 200 J	BS EN 12568:2010, C- 5.4.3	39	mm	20.0 (Min) 21.5 (Min) 22.0 (Min)	24.6(R), 24.5(L) (No Crack)
			43			24.5(R), 24.8 (L) (No Crack)
			46			26.7(R), 26.5(L) (No Crack)
iii)	Impact Resistance (Effect of Acid) at 200 J	BS EN 12568:2010, C- 5.4.4	39	mm	20.0 (Min) 21.5 (Min) 22.0 (Min)	24.3(R), 24.5(L) (No Crack)
			43			26.0(R), 26.5(L) (No Crack)
			46			26.1(R), 26.1(L) (No Crack)
iv)	Impact Resistance (Effect of Alkali) at 200 J	BS EN 12568:2010, C- 5.4.5	39	mm	20.0 (Min) 21.5 (Min) 22.0 (Min)	24.6(R), 24.5(L) (No Crack)
			43			24.2(R), 24.2(L) (No Crack)
			46			25.1(R), 24.5(L) (No Crack)
v)	Impact Resistance (Effect of Fuel Oil) at 200 J	BS EN 12568:2010, C- 5.4.6	39	mm	20.0 (Min) 21.5 (Min) 22.0 (Min)	24.1(R), 24.5(L) (No Crack)
			43			24.7(R), 24.2(L) (No Crack)
			46			26.4(R), 24.5(L) (No Crack)

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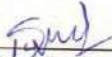
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**Sample: Penetration (Non-Metallic)**

Sl. No.	Name of the Test	Test Method	Size	Unit	Specified Requirements	Obtained value
<b>Environmental Treatments, Clause 7.4</b>						
i)	Penetration resistance (Effect of High Temperature)	BS EN 12568:2010, C- 7.4.2	39	N	At 1100 N the tip of the test nail shall not penetrate through the test piece	At 1100 N the tip of the nail did not penetrate through the test piece.
			43			At 1100 N the tip of the nail did not penetrate through the test piece.
			46			At 1100 N the tip of the nail did not penetrate through the test piece.
ii)	Penetration resistance (Effect of low Temperature)	BS EN 12568:2010, C- 7.4.3	39	N	At 1100 N the tip of the test nail shall not penetrate through the test piece	At 1100 N the tip of the nail did not penetrate through the test piece.
			43			At 1100 N the tip of the nail did not penetrate through the test piece.
			46			At 1100 N the tip of the nail did not penetrate through the test piece.
iii)	Penetration resistance (Effect of Acid)	BS EN 12568:2010, C- 7.4.4	39	N	At 1100 N the tip of the test nail shall not penetrate through the test piece	At 1100 N the tip of the nail did not penetrate through the test piece.
			43			At 1100 N the tip of the nail did not penetrate through the test piece.
			46			At 1100 N the tip of the nail did not penetrate through the test piece.
iv)	Penetration resistance (Effect of Alkali)	BS EN 12568:2010, C- 7.4.5	39	N	At 1100 N the tip of the test nail shall not penetrate through the test piece	At 1100 N the tip of the nail did not penetrate through the test piece.
			43			At 1100 N the tip of the nail did not penetrate through the test piece.
			46			At 1100 N the tip of the nail did not penetrate through the test piece.
v)	Penetration resistance (Effect of Fuel Oil)	BS EN 12568:2010, C- 7.4.6	39	N	At 1100 N the tip of the test nail shall not penetrate through the test piece	At 1100 N the tip of the nail did not penetrate through the test piece.
			43			At 1100 N the tip of the nail did not penetrate through the test piece.
			46			At 1100 N the tip of the nail did not penetrate through the test piece.

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