

Laboratory International Testing Centre, MSME-Technology Development Centre- (PPDC), Sports Goods Complex, Delhi Road, Meerut, Uttar Pradesh
Accreditation Standard ISO/IEC 17025: 2005
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>CHEMICAL TESTING</u>				
I.	TEXTILE (WOVEN & NON WOVEN)			
1	Fabrics, Coated Fabrics, Garments & made ups, Fibre, Filaments, Yarn, Cords, Jute, Zippers, sports textiles, School Bag.	Fibre Composition: Mixtures of acetate and certain other fibres (method using acetone)	IS 667:1981 RA 2008 ISO 1833-1:2006 ISO 1833-3:2006 AATCC 20 : 2013 AATCC 20A:2014	2% to 100%
		Fiber composition: Mixtures of certain protein and certain other fibres (method using hypochlorite)	ISO 1833-1:2006 ISO 1833-4:2006 AATCC 20 : 2013 AATCC 20A:2014 IS 667:1981 RA 2008 IS 2006:1988 RA 2009	2% to 100%
		Fiber composition: Mixtures of viscose or certain types of cupro or modal or lyocell and cotton fibres (method using Formic acid and Zinc chloride)	ISO 1833-1:2006 ISO 1833-6:2007(E) IS 667:1981 RA 2008 AATCC 20 : 2013 AATCC 20A:2014 IS 2005:1988 RA 2009	2% to 100%
		Fiber composition: Mixtures of polyamide and certain other fibres (method using formic acid)	IS 2005:1988 RA 2009 ISO 1833-1:2006 IS 667:1981 RA 2008 AATCC 20 : 2013 AATCC 20A:2014 ISO 1833-7:2006 (E)	2% to 100%

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		Fiber composition: Binary mixtures of polyester fibres with cotton or regenerated cellulose-sulphuric acid method	ISO 1833-1:2006 ISO 1833-11:2006 (E) IS 667:1981 RA 2008 IS 2005:1988 RA 2009 IS 3416:1988 AATCC 20 : 2013 AATCC 20A:2014	2% to 100%
		Fiber composition: Mixtures of acrylic, certain modacrylics, certain Chlorofibres, certain elastanes and certain other fibres (method dimethyl formamide)	ISO 1833-1:2006 ISO 1833-12:2006(E) IS 2005:1988 RA 2009 IS 667:1981 RA 2008 AATCC 20A 2014	2% to 100%
		Identification of textile fibres	IS 667:1981 RA 2008 AATCC 20 2013	Qualitative
		Colorfastness to Crocking/Rubbing	ISO 105 X12 : 2016, IS 766 : 1988 RA 2009	1 to 5 Grade
		Colorfastness to Perspiration	ISO 105 E04 : 2013, IS 971:1983 RA 2009	1 to 5 Grade
		Colorfastness to Water	ISO 105 E01: 2013, IS 767:1988 RA: 2009	1 to 5 Grade
		Dimensional changes on soaking in water	IS 2977-1989 RA 2010	Upto $\pm 25\%$
		Dimensional due to Relaxation shrinkage woolen products	IS 1313:1984 RA 2008, Appendix- A-2	0.1% to 20%
		Felting Shrinkage of woolen products on Washcator when shrinkage is determined	IS 1313:1984 RA 2008, Appendix- A-2	0.1% to 20%

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		Dimensional due to Relaxation shrinkage- Wool cotton vest	IS 3330-1988 RA 2008 Appendix-A-5	0.1% to 20%
		Area shrinkage of Woolen Products	TM-31-2000-Woolmark, IS 1313:1984 RA 2008,	0.1% to 20%
		Wool fiber diameter	IS 744-2000 RA 2010, IS 5911-1977 RA 2008	10 micron to 100 micron
		Finess or Grade of wool	IS 744-2000 RA 2010, IS 5911-1977 RA 2008	36 s to 80s
		Scouring Loss of textile materials	IS 3330-1988 RA 2008, Append-A-7.2.1, IS 1383-1977 RA 2009 IS 2360:1977 RA 2008, Append A-6	0.5 % to 20 %
		Water soluble matter	IS 3456:1966 RA 2010	0.1% to 20%
		Alkali Solubility	IND/TC/4668(b), IS 3429:1966 RA 2010	5% to 40 %
		pH of aqueous extract	ISO 3071:2005, IS 1390:1983 RA 2009	1 to 14
		Water Resistance (Wetability)	IS 2349:1963 RA 2010, IS 390:1975 RA 2008	Subjective
		Water absorption (Bundesmann apparatus)	IS 392:1989 RA 2010	5% to 100%
		Water Penetration, (Bundesmann apparatus)	IS 392:1989 RA 2010	0 to 200 ml
		Free and Hydrolysed Formaldehyde (Water Extraction Method)	ISO 14184-1 : 2011	16 mg/kg to 1000 mg/kg
		Released Formaldehyde (Vapour absorption Method by sealed Jar method)	EN ISO 14184-2-2011	20 mg/kg to 1000 mg/kg

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		Colour Fastness to washing	IS/ISO 105 C 10:2006, Superseding IS 764/IS 765/ IS 687 /IS 3361 /IS 3417	Qualitative, (Grade 1 to 5)
		Ash content	IS 199:1989 RA2010, Cl.No.6	Upto 10%
		Moisture content	IS 199:1989 RA 2010, Cl.No 4	0.1% to 30%
2.	Leather and Leather products	Colourfastness to Perspiration	ISO 11641:2012	Qualitative 1 to 5 Grade
		Total Ash Content	IS 582 :1970 RA 2009 LC-3, IS 3400-Part-22-1984 A-8 RA2008	0.1% to 20 %
		Chromium VI Content	ISO 17075:2007	1.0 mg/kg to1000 mg/kg
		Formaldehyde Content	ISO 17226-2 : 2008	5 mg/kg to 200 mg/kg
		pH Value	IS 582:1970 RA 2009 LC-18, ISO 4045 : 2008	1 to 14
		Water Soluble matter	IS 582:1970 RA 2009, LC-6	0.2% to 25%
		Solvent Extractable substances	IS 582:1970 RA 2009 LC-4	0.5% to 15%

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>MECHANICAL TESTING</u>				
1.	TEXTILE MATERIALS			
1.	Fabrics, Coated Fabrics, Garments & made ups, Fibre, Filaments, Yarn, Cords, Jute, Zippers, sports textiles, School Bag,	Linear density of Yarn removed from Fabric	ISO 7211-5 :1984	6 ^s Ne to 120 ^s Ne (40 N to 900 N)
		Construction: Threads per unit Length- Ends/picks	ISO 7211 :2 : 1984, IS 1963:2004 RA	5 to 275 Threads /cm, (12 to 700 Threads / 2.54 cm)
		Thickness of Textile and textile Products	ISO 5084:1996, IS 7702 : 2012	0.1 mm to 15 mm
		Mass Per Unit Area /Mass per unit Length	ISO 3801 : 1977 , BS EN 61 : 1998, IS 1964 : 2001 RA 2010	10 g/Sq.m to1000 g/Sq.m
		Tensile Properties of Fabric - Strip Test	ISO 13934-1 : 1999, IS 1969 (Part -1) : 2009	50 N to 8000 N
		Bursting Strength- Diphargam Method	BS EN ISO 13938-1:1999, IS 1966-1:2009	210 kPa to 2942 kPa, (2.1 kg/cm ² to 30 kg/cm ²)
		Pilling Resistance - ICI Pill Box Method	ISO 12945-1 : 2000 , IS 10971-1 2011	1 to 5 Grade / ± ½ Grade
		Width of Fabric	ISO 22198 : 2006, IS 1954:1990 RA 2007	1 cm to 300 cm
		Length of Fabric	ISO 22198:2006, IS 1954:1990 RA 2007	0.05 m to 100 m
		Colour fastness to dry heat	IS:4636:1988 RA 2010	Qualitative Grade 1 to 5
		Colorfastness to artificial Light (Xenon Arc lamp)	ISO-105 B02-2014, IS 2454 : 1985 RA 2010, IS 15844:2010	1 to 5 Grade/Blue Wool Rating 1 to 8
		Abrasion Resistance (Plain Abrasion- martindale)	IS:12673:1989, ISO 12947-1:1998	1 to 99999 cycles

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		Tear strength (Constant Rate of Tear- Method A)	IS:7016 (Part-3)1982 RA 2008 IS 6489 (Part 4) 2011	1N to 1500N
		Spray Test	IS:390 :1975 RA 2008 ISO 4920:2012	Qualitative
		Blocking Test	IS:7016 (Part-9) 2003 RA 2009	Visual
		Flex Abrasion Resistance	IS:12673:1989, ISO 12947-1:1998	1 to 99999 cycles
		Dimensional stability of textile fabrics to dry heat	IS 12170:1987 RA 2010	0.1% to100%
		Ageing test	IS 7016 (Part 8) 1975 RA 2012 (Oven Method)	Qualitative
		Single Yarn Strength Breaking Strength	ISO 2062 : 2009, IS 1670:1991 RA 2007	Breaking Strength 1 N to 300 N
		Dimensions of Zipper elements	IS 14181 (Part 1):2002, IS 14181-(Part-2):2002 Annex A	0.1 mm to 50 mm
		Breaking Strength	IS 14181 (Part 1):2002,	100 N to 5000N
		Security of interlocking of textile chain to lateral Load	IS 14181 (Part 1):2002, IS 14181-(Part-2):2002 Ann. A & B, BS EN 16732:2015	50 N to 3000 N
		Security of attachment to top stop	IS 14181 (Part 1):2002, IS 14181-2:2002 Annex D, IS 14181 (Part 3) 2002 BS EN 16732:2015	1 N to 1000 N
		Security of attachment to bottom stop	IS 14181 (Part 1):2002, IS 14181-2:2002 Annex E, IS 14181 (Part 3) 2002 BS EN 16732:2015	1 N to 1000 N
		Security of attachment of puller to slider	IS 14181 (Part 1,2 & 3):2002, IS14181-2:2002 Annex H, BS EN 16732:2015	1 N to 1000 N

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		Security of slider lock holding	IS 14181 (Part 1,2 & 3):2002, IS 14181-2:2002 Annex J,	1 N to 1000 N
		Fold over security of textile chain	IS 14181 (Part 1,2 & 3):2002, IS 14181-2:2002 Annex C, BS EN 16732:2015	1 N to 2000 N
		Reciprocating Movement of slider under Load	IS 14181 (Part 1,2 & 3):2002, IS 14181-2:2002 Annex K, BS EN 16732:2015	Qualitative
		Remeshability of fastener	IS 14181 (Part 1,2 & 3):2002, IS 14181-2:2002 Annex N,	Qualitative
		Crease Recovery Angle by Measuring Angle of Recovery	IS 4681-1981 (RA 2014) ISO 2313	20° to 180° (each direction)
II.	LEATHER AND LEATHER PRODUCTS			
1.	Glove	Comfort & Efficiency: Glove Size Fit to Hand	EN 420: 2010	Qualitative
		Finger Dexterity Level Performance	EN 420: 2010	Grade 1 to 5
		Water Vapour Transmission & Absorption	EN 420: 2010	0.1 mg/cm ² .h to 20 mg/cm ² .h
		Tear Test	EN 388:2003 Clause 6.3	10 N to 500 N
		Abrasion resistance Martindale	EN 388:2003 Clause 6.1	Qualitative: Surface Change: -Absent /Present
2.	Leather, Footwear, Sports footwear and accessories.	Construction	ISO 20344:2011 IS 15298 (Part 1):2015	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016 Clause 5.3.1.1	
			ISO 20346:2014/ IS 15298(Part 3):2011	
			ISO 20347:2012/ IS 15298(Part 4):2017	

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		Toe protection (General)	ISO 20344:2011/ IS 15298(Part 1):2015	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016 Clause 5.3.2	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Specific ergonomic features	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.1	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Upper /Outsole and sole inter layer bond strength.	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.2	0.4 N/mm to 20.0 N/mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 411 May 1992	
		Internal Toe Cap Length	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.3	2 mm to 80 mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	

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			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Toe Protection (General Clause) : Damage to Footwear on Removal of Toecap	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.3	Qualitative : Absent or Present
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Finishing of Toe Caps Surface Marks, Burrs Sharp Edges Delamination	BS EN 12568:2010 (Clause 4.2.1)	Qualitative: Observed/ Not Observed
		Water Absorption % (Kubelka)	IS:5914:1970 RA 2009	1% to 60%
		Corrosion resistance of metallic toecaps or penetration resistance metallic inserts	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.6.1	Qualitative : Observed / Not Observed
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Impact Resistance	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.4	2 mm to 80 mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	

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			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Compression Resistance	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.5	0.1 mm to 25 mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Leak Proofness	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.7	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Resistance to Flexing (full shoe)	ISO 20344:2011/ IS 15298 (Part 1):2015	Qualitative observation of cracking or surface change
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 92 Nov 2016	
		Electrical Properties (Conductive Footwear, Antistatic Footwear)	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.10	25 kΩ to 1000 MΩ

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			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Insulation against heat	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.12	01°C to 300 °C
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Insulation against cold/ Antifreeze test/ Low Temperature Resistance at -30°C to -5°C	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.13	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Energy Absorption of seat region	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 5.14	1 J to 50 J
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	

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		Thickness	ISO 2589:2002	0.1 mm to 10 mm
			ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.1	
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Height of Upper	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.2	10 mm to 300mm
			ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Tear Strength : Upper and Lining of Leather and Coated fabric	ISO 20344:2011/ IS 15298 (Part 1):2015	0.1 N to 2000 N / 0.1 N
			ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			ISO-3377-1:2011 ISO-3377-2:2016 ISO-4674-1:2003 method B	
			IS:5914:1970 RA 2009	
			SATRA TM 162: Apr 2017	

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		Tensile Strength	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.4	1 N/mm ² to 40 N/mm ²
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			IS 5914:1970 RA 2009 LP 6	
			IS 15298:(Part 1):2015, IS 15298:(Part 2):2016, IS 15298:(Part 3):2011 IS 15298: (Part 4):2017	
			SATRA TM 43: Jun 2000	
			ISO 3376:2011	
		Resistance to damage by flexing (Demattia Method)	ISO-7854:1995 (E) (Method-A)	Qualitative observation of cracking or surface change
		Flex Resistance by Flexometer Method	ISO 5402 :1: 2017 SATRA TM 55 :Mar 1999 IS 5914:1970 RA 2001 LP 19 IS 15844:201	Qualitative Absent or Present
		Resistance to Cut Growth on Flexing : Ross Flex Test	ISO 20344:2011/ IS 15298 (Part 1):2015	2 mm to 8 mm cut growth
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 60 Jul 1992	

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		Water Vapour Permeability, absorption and Coefficient - Uppers and Lining	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.6 & 6.7	0.1 mg/cm ² .h to 30 mg/cm ² .h
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 172 May 1993 SATRA TM 178 Jun 2001	
		Hydrolysis inside Oven at 70°C with Desiccator	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.10	Qualitative Growth of Cracking / or Surface Change: - Absent/Present
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 344 Apr 1995	
			ISO -5423:1992 Annex C&E	
		Abrasion resistance of lining (martindale)	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.12	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 31 Apr 2003 (2014)	

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		Water penetration & water absorption	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.13	0.001 g to 300g
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 171 Apr 2017	
			ISO-5403 1:2011 ISO-5403- 2:2011	
		Thickness of the Insole	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 7.1	0. mm 1 to 50 mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 1 Nov 2004 (2013)	
			ISO-2589:2002	
		Construction of Insole:- Damage to Footwear on Removal of Insole	ISO 20344:2011/ IS 15298(Part 1):2015	Qualitative Absent or Present
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298(Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Water absorption & de- absorption	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 7.2	0.01 mg/cm ² to 300 mg/cm ²

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			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			SATRA TM 41 May 1999	
			ISO 5404:2011	
		Abrasion Resistance of Insole / Insock : 400 Cycles of Veslic	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 6.12	Qualitative Severity of Abrasion:- Observed / Not Observed
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Design:- 1. Cleated & Non-Cleated Area of total Length of Sole 2. Height of Cleat	ISO 20344:2011/ IS 15298 (Part 1):2015	Qualitative
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Thickness of Non Cleated / cleated Outsole	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.1	0.5 mm to 20 mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Sole Tear Strength	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.2	1 N/mm to 20 N/mm
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
			ISO 34 -1:2010 Method A SATRA TM 218 Jun 1999	
		Abrasion Resistance of sole (Drum)		10 mm ³ to 1200 mm ³
			ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.3	
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Sole Flexing (Benn Wart)	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.4	2 mm to 8 mm cut growth
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	

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			SATRA TM 161 Nov 2004	
			DIN 53543 : 1979	
		Resistance to Fuel Oil	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.6	1 % to 30%
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298(Part 4) 2017 ISO 1817 :2015	
		Resistance to hot Contact	ISO 20344:2011/ IS 15298 (Part 1):2015 Clause 8.7	Qualitative Surface Change:- Absent/Present
			BS EN ISO 20345 :2011/ IS 15298 (Part 2):2016	
			ISO 20346:2014/ IS 15298 (Part 3):2011	
			ISO 20347:2012/ IS 15298 (Part 4):2017	
		Density	ISO 2781:2008: Method –B	0.1 mg/m ³ to 4 mg/m ³
			IS 3400-9:2014	
		Hardness (Shore Hardness)	ISO 868:2003 (Type-A)	Shore A : 1 to 100
			SATRA TM 205 Aug 2016 (2017)	
			IS 3400-2: 2014	
		Adhesion of finish: Films or Coating	SATRA TM 148 Jan 1997	Qualitative Peeling/ Delamination: Absent or Present
		Strap to Sole Attachment	SATRA TM 120 Jun 2001	5 N to 2000 N

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Strap/Buckle & Related Attachment strength	BS 5131 : 5 : 11:1981	5 N to 1500 N
			SATRA TM 181 Jul 2017	
		Toe Post Attachment	SATRA TM 118 Aug 1992	5 N to 1000 N
		Heel Attachment	SATRA TM 113 Dec 1996	5 N to 2000 N
			EN 12785 : 2000	
			BS 5131 : 5.10 : 1990	
		Toe Piece Attachment	SATRA TM 108 Sep 1992	5 N to 500 N
			BS 5131 : 5.9 : 1979	
			SATRA TM 123 Jul 1992	
		Seat Region of Heel	BS EN ISO 20345 :2011 : 2011 (Clause 5.2.3)	Qualitative : Closed or not Closed
			ISO 20346 : 2014	
			ISO 20347 : 2011	
			IS 15298:(Part 1):2015, IS 15298:(Part 2):2016, IS 15298:(Part 3):2011 IS 15298: (Part 4):2017	
		Lace to Eyelet Attachment	SATRA TM-149 May 1999	20 N to 600 N
		Velcro Peel (Initial)	SATRA TM 123 Jul 1992	0.1 N/mm to 10 N/mm
			ISO 22777 : 2004	
		Shear Strength (Initial)	ISO 22776 : 2004	0.1 N/mm to 10 N/mm
			SATRA TM 123 Jul 1992	
		Taber Abrasion	SATRA TM 163	Qualitative
		Resistance to dry Heat	ISO 17227:2015	0.1% to 30%
		Colourfastness to accelerated ageing	ISO 17227:2015	Qualitative Grade 1 to 5
		Cold Crack temperature of leather	ISO 17233:2002	15 °C to (-)30 °C
		Penetration Resistance	ISO-20344:2011	1 N to 100 kN
			BS EN ISO 20345 :2011-2011	
			IS 15298:2011(Part 1):2015, IS 15298:2011(Part 2):2016, IS 15298:2011(Part 3):2011	

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Internal Length	BS EN 12568:2010 (Clause 4.2.2.1 & 5.2.1)	2 mm to 100 mm
		Width of Flange	BS EN 12568 : 2010 (Clause 4.2.2.2)	2 mm to 20 mm
		Leather Identification by Microscope	ISO 17131:2012	Visual
		Colourfastness to crocking	IS 6191:1971 RA 2009 LF 10, SATRA TM 167 Jul 2017 ISO 105 X12: 2016	1 to 5 Grade