Laboratory	**The Bombay Textile Research Association, L. B. S. Marg, Ghatkopar (West), Mumbai, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Chemical Testing**	**Issue Date**	**28.02.2014**
Certificate Number	**T-0363**	**Valid Until**	**27.02.2016**
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. TEXTILES & RELATED PRODUCTS				
1.	**YARN / FABRIC**	Degree of Mercerisation of Cotton-Barium Activity Number	IS 1689-1973, (RA 2004)	100 to 160
		Water Soluble Matter	IS 3456-1966, (RA 2005)	0.1% to 20%
		Whiteness index by Reflectance Measurement	AATCC 110-2011	10 to 200
2.	**FIBRE / YARN / FABRIC**	Identification of Fibre	IS 667-1981, (RA 2003) AATCC 20-2011	Qualitative
		Blend Analysis	IS 3416 (Part 1) 1988, (RA 2008)	1% to 100%
			IS 1889 (Part 4) 1979, (RA 2010)	1% to 100%
			IS 2006-1988, (RA 2009)	1% to 100%
			IS 3421-1988, (RA 2009)	1% to 100%
			IS 2005-1988, (RA 2009) AATCC 20 A-2012	1% to 100%
		Estimation of Fatty Matter, Fats/Waxes, ash content	IS 199-1989, (RA 2005)	0.1% to 5%
		Moisture content	IS 199-1989, (RA 2005)	0.5% to 20%
		Colour Fastness to Washing with Soap or Soap and Soda	IS/ISO 105 C10-2006	Grade: 1 to 5 Qualitative

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	FIBRE / YARN / FABRIC	Colour Fastness to Washing	IS 687-1979, (RA 2003)	Grade: 1 to 5 Qualitative
			IS 3361-1979, (RA 2003)	Grade: 1 to 5 Qualitative
			IS 764-1979, (RA 2003)	Grade: 1 to 5 Qualitative
			IS 765-1979, (RA 2003)	Grade: 1 to 5 Qualitative
			IS 3417-1979, (RA 2003)	Grade: 1 to 5 Qualitative
		Colour Fastness to Domestic and Commercial Laundering	ISO 105 C06-2010	Grade: 1 to 5 Qualitative
		Colour Fastness to Dry Cleaning	IS 4802-1988, (RA 2004) ISO 105 D 01- 2010	Grade: 1 to 5 Qualitative
		Colour Fastness to Organic Solvent	IS 688-1988, (RA 2004)	Grade: 1 to 5 Qualitative
		Colour Fastness to Artificial light (Xenon Arc Lamp)	IS 2454-1985, (RA 2010) ISO 105 B02-2013	Blue Wool Rating: 1 to 8 Qualitative
			AATCC 16.3-2012	Grade: 1 to 5 Qualitative

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	FIBRE / YARN / FABRIC	Colour Fastness to Water	IS 767-1988, (RA 2004)	Grade: 1 to 5 Qualitative
			ISO 105 E01-2013	Grade: 1 to 5 Qualitative
			AATCC 107-2012	Grade: 1 to 5 Qualitative
		Colour Fastness to Chlorinated Water	IS 4803-1985, (RA 2006)	Grade: 1 to 5 Qualitative
		Colour Fastness to Sea Water	IS 690-1988, (RA 2004)	Grade: 1 to 5 Qualitative
			ISO 105 E02-2013	Grade: 1 to 5 Qualitative
		Colour Fastness to bleaching - Hypochlorite	IS 762-1988, (RA 2004)	Grade: 1 to 5 Qualitative
		Colour Fastness to Bleaching - Peroxide	IS 763-1988, (RA 2004)	Grade: 1 to 5 Qualitative
		Colour Fastness to Perspiration	IS 971-1983, (RA 2004) ISO 105 E04-2013 AATCC 15-2009	Grade: 1 to 5 Qualitative
		pH value of aqueous extract	IS 1390-1983, (RA 2004) AATCC 81– 2012 ISO 3071-2005	1 to 12

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	FIBRE / YARN / FABRIC	Colour fastness to domestic and commercial laundering - Oxidative bleach	ISO 105 C 09-2001	Grade: 1 to 5 Qualitative
		Colour fastness to hot pressing	ISO 105 X 11-1994	Grade: 1 to 5 Qualitative
3.	**FABRIC**	Colour Fastness to Rubbing	IS 766-1988, (RA 2004) ISO 105 X12-2001 AATCC 8-2007	Grade: 1 to 5 Qualitative
		Colour Fastness to Laundering-Home and Commercial (Accelerated)	AATCC 61-2010	Grade: 1 to 5 Qualitative
		Scouring loss	IS 1383-1977, (RA 2004)	0.05% to 10%
		Heat Shrinkage	IS 15853 - 2009	-10% to +10%
		Dimensional changes of Fabric & Garment after Home Laundering	AATCC 135-2012 AATCC 150-2012 ISO 6330-2012, ISO 3759- 2011, ISO 5077- 2007	-20% to +20%
		Dimensional changes on soaking in Water	IS 2977-1989, (RA 2005) (other than wool) woven and knitted	-20% to +20%
			IS 665-1989, (RA 2010) (containing wool)	-20% to +20%

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	FABRIC	Water Repellency of Fabrics by Water spray Test	IS 390-1975, (RA 2003)	Rating: 0 to 100 Qualitative
		Dimensional changes on washing of Fabrics Woven from Rayon and Synthetic Fibres	IS 1299-1984, (RA 2005)	-20% to +20%
		Resistance to Penetration by Water of Fabrics by Hydrostatic Head Test	IS 391-1975, (RA 2003)	Water column Height: (0 to 100) cm
		Water absorption and Penetration of Fabrics using Bundesman Type Apparatus	IS 392-1989, (RA 2005)	(0 to 100)% Leakage: (0 to 400) ml
		Flammability and Flame resistance of Textile Fabrics	IS 11871-1986, (RA 2004) Method A	Upto 305 mm
		Automotive Vehicles-Flammability Requirements	IS 15061-2002, (RA 2006) (Annexure A)	Upto 500 mm / min
4.	**TEXTILE**	Free Formaldehyde content	ISO 14184 (Part 1) 2011	(16 to 10000) mg/kg
		Released formaldehyde content	ISO 14184 (Part 2) 2011	(20 to 10000) mg/kg
		Analysis of Heavy Metals (Extraction using acid perspiration solution)	ISO 105 E04-2013 followed by AAS analysis by APHA 3111 A & B: 2005	
		1) Lead		(0.2 to 10000) mg/kg
		2) Cobalt		(1.0 to 10000) mg/kg
		3) Antimony		(6.0 to 10000) mg/kg
		4) Nickel		(0.5 to 10000) mg/kg

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	TEXTILE	5) Copper 6) Cadmium 7) Arsenic 8) Chromium 9) Mercury	ISO 105 E04-2013 followed by AAS analysis by APHA 3111 A & B: 2005	(0.1 to 10000) mg/kg (0.075 to 10000) mg/kg (0.01 to 10000) mg/kg (0.25 to 10000) mg/kg (0.01 to 10000) mg/kg
		Determination of formaldehyde-Part 1: Free and hydrolyzed formaldehyde (water extraction method)	JISL 1041 (Part 1) 2011	(16 to 10000) mg/kg
		Flammability of clothing textile (45° inclined flammability tester)	16 CFR 1610-2012 ASTM D 1230-2010 IS 11871 - 1986 (RA 2004) Method B	(1 to 60) sec
		Smoothness Appearance of Fabrics after Repeated Home Laundering	AATCC 124–2011	Grade: 1 to 5 Qualitative
		Protective clothing-Protection against heat and flame	IS 15758 (Part 4) 2007 ISO 15025 –2000 DIN EN ISO 15025-2003 BS 5438-1989 Test 2A & 2B	a) After Flame Time: Upto100 sec b) After Glow Time: Upto100 sec c) Char Length: Upto 200 mm
		Flammability by Oxygen Index	IS 13501-1992 (RA 2008)	15 to 100

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5.	**TEXTILE / DYES / PIGMENT**	Certain aromatic amines derived from azo colorants	EN 14362 (Part 1) 2012	(20 to 10000) mg/kg
		Azo colorants which may release 4-amino azobenzene 1) 4-aminobiphenyl 2) Benzidine 3) 4-chloro-o-toluidine 4) 2-naphthylamine 5) o-aminoazotoluine 6) 5-nitro-o-toluidine 7) 4-chloroaniline 8) 2,4-diaminoanizole 9) 4,4’-methylenedianiline 10) 3,3’-dichlorobenzidine 11) 3,3’-dimethoxybenzidine 12) 3,3’-dimethylbenzidine 13) 4,4- methylenedi-o-toluidine 14) p-cresidine 15) 2,2’-dichloro-4, 4’-methylenedianiline 16) 4,4’-oxydianiline 17) 4,4’-thiodianiline 18) o-toluidine 19) 2,4-toluenediamine 20) 2,4,5-trimethylaniline 21) o-anisidine 22) 4-aminoazobenz ene 23) 2,4-xylidine 24) 2,6-xylidine	EN 14362 (Part 3) 2012	

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6.	**YARN / FABRIC CHEMICALS AND AUXILIARIES**	Instrumental Colour Measurement A) Reflectance method B) Transmittance method (for clear solutions) C) Colour strength value using Reflectance measurement	AATCC 173 - 2009	 1 to 200 1% to 100% 1% to 100%
7.	**TEXTILE AUXILIARIES IN EFFLUENT**	Chemical Oxygen Demand (COD)	IS 3025 (Part 58) 2006	(20 to 3000) mg/l
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44) 1993, (RA 2003)	(20 to 3000) mg/l
		Biodegradability of Textile Chemicals and Auxiliaries	OECD Guidelines (1992) 301D	10% to 100%
8.	**TEXTILE AUXILIARIES**	Free formaldehyde content in Textile auxiliaries / chemicals	BTRA-In house developed Method-SOP-I-2012	(1 to 50000) mg/l
9.	**SYNTHETIC FIBRE**	Melting Temperature of Synthetic Fibers	ASTM D 7138-08	100°C to 590°C
10.	**TEXTILE ACCESSORIES**	Total Lead (Pb) in Children's Metal Products (Including Children's Metal Jewelry)	CPSC-CH-E-1001-08 Microwave digestion followed by AAS Method EPA 3051 A - 2007 ASTM E 1613-2004 ASTM E 1645-2001	(5 to 900000) mg/kg
11.	**TEXTILE ACCESSORIES, SILICEOUS MATERIAL**	Total Lead (Pb) in Non-Metal Children's Products	CPSC-CH-E-1002-08 Microwave digestion followed by AAS Method EPA 3052 -2007, EPA 3051-2007	(5 to 900000) mg/kg

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12.	**TEXTILE ACCESSORIES (Metallic)**	Lead in Surface Coating	CPSC-CH-E-1003-09 Microwave digestion followed by AAS Method 16 CFR Part 1303, ASTM E 1645-2001 ASTM E 1613-2001	(5 to 10000) mg/kg
13.	**TEXTILE FABRICS**	Burning behavior - Measurement of flame spread properties of vertically oriented specimen	IS 15590-2005 ISO 6941-2003	Burning time: Upto 100 sec

-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-