

PHYSICAL QUALITY EVALUATION LABORATORY

- Scope :** 1) Testing of Various types of Fibres, Silver, Roving, Yarn, Threads, Rope, Fabric, Garment, Carpets, Pile fabrics, Netting Fabric, Blankets, Filter fabrics, Automotive textiles, Non-Woven fabrics, Geo Textiles , Medical Textiles and other textile materials.
 2) Technical Opinion
 3) Third Party Inspection.
 4) Fabric Defect Analysis.
 5) Consultancy on quality issues

(I) Fibre Testing :-

S. N	Nature of test	Instrument	Fee (₹) per sample	Commonly Used Methods	Sample requirement*
(I) Cotton					
1	Cotton Testing for Fibre fineness , length , Uniformity , Strength Elongation , short Fibre % and Colour Grade By HVI (HVI & ICC mode)	HVI900- Spinlab	600.00	ASTM D 5867-05	100 Gm
2	Fibre Length Distribution by Array Method	Comb Sorter	600.00	ASTM D 1440-07 IS233Pt-2:78:Re 08	100 Gm
3	Length and Length Uniformity by Optical scanning method	Digital Fibrograph- Spinlab	300.00	IS233Pt6 :1978:Re08 ASTM D 1447 :07	100 Gm
4	Micronaire Value of cotton Fibre by Air flow method	HVI-900 Spinlab Port-ar , Spinlab	200.00	IS 3674 :1966 Re 08 ASTM D 1448-05	100 Gm
5	Cotton Fibre Maturity by sodium hydroxide swelling method	Microscope-Zeiss	400.00	IS 236 : 1968 Re 08 ASTM D :1442 : 06	100 Gm
6	Breaking strength & Elongation of cotton fibre By Flat Bundle Method	Stelometer- Spinlab	300.00	IS 3675 :1966 Re08 ASTM D :1445-05	100 Gm
7	Lint and Trash Content in cotton by mechanical –pneumatic m/c	Trash Analyser- Statex	300.00	IS 4871-1968 Re 08 ASTM D 2812 -07	300 Gm
8	Nep Content	Manual	300.00	IS 684 :1962 Re 08	50 Gm
9	Colour Grade of cotton Rd Value , + b Value	HVI ,Spinlab	200.00	ASTM D 5867-05	100 Gm

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10	Cotton Seed Attachment Force	Shirley Cotton Seed attachment Tester	150.00	In House Method	100 Gm
11	Moisture content / Regain by oven drying method	Oven , Desiccators ,Electronic balance	400.00	ASTM D 2495 -07 IS :199	250 Gm
12	Differential dyeing behavior of cotton fibre	-----	1000.00	ASTM D 1464: 07	300 Gm
13	Presence of Contamination	UV Check light	500.00	Visual Inspection	500 Gm

S. N	Nature of test	Instrument	Fee (`) per sample	Commonly used Methods	Sample requirement*
(II) Wool and others					
1	Fibre Length & length distribution of wool fibre	Comb Sorter	500.00	ASTM D 519 :04 Re 08 IS 1377 :1971 Re 08 IS 8387 :1977 Re 08 ASTM D 1575:90 Re 08	50 Gm
2	Fibre Diameter of wool and other animal fibres	Manual	500.00	IS 744 : 2000 Re 06 ASTM D 2130:90 Re 08 IWS TM 24	50 Gm
3	Wool Fibre Fineness Grade / Micron	Projection Microscope –Zeiss	600.00	IS 744 : 2000 Re 06 IS 5910 :1977 Re 08 IS 5911 : 1977 Re 08	50 Gm
4	Medullated Fibres in wool	Projection Microscope –Zeiss	500.00	IS 2899 -1965	50 Gm
5	Med and Kemp in wool and other animal fibres (Micro projection Method)	Microscope – Zeiss	600.00	ASTM D 2968-95 Re 08 IS :744:2000 Re 06	50 Gm
6	Crimp in wool	----	500.00	IS 6124 : 1971 Re 05	50 Gm
7	Staple length of wool	----	500.00	IS : 6653 :1973 Re 05	50 Gm
8	Wool Fibre Diameter by Airflow method	----	500.00	IS 6919 : 1973 Re 05	50 Gm
9	Fibre Fineness of Clean Flex	Port-ar-Spin lab	500.00	ASTM D 7025 : 09	50 Gm
10	Breaking Tenacity of wool fibre Flat Bundle method	Stelometer-Spinlab	500.00	ASTM D 2524:95 Re 08	50 Gm

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11	Cashmere coarse hair content in cashmere	Microscope –Zeiss	1000.00	ASTM D 2816-05 Re 09	50 Gm
12	Counting partial cleavages in wool and other animal fibres	Microscope -Zeiss	1000.00	ASTM D 4510-05	100 Gm
13	Moisture content in wool by oven dry method	Oven	400.00	ASTM D 1576-90 Re 08	200 Gm

S. N.	Nature of test	Instrument	Fee (`) per sample	Commonly Used Methods	Sample Requirement*
(III) Manufactured Fibres					
1	Length & length distribution of staple fibre <ul style="list-style-type: none"> • Oil Plate Method • Self –Adhesive Tape Method • Array Method 	Comb Sorter	600.00	BISFA IS:10014Pt-1:1984 ASTM D 5103 -07	20 Gm
2	Over Length Fibre %	Fibro sampler	400.00	ASTM D 3513:02(07)	20 Gm
3	Linear density of single fibre / filament <ul style="list-style-type: none"> • Cut & Weigh Method • Vibroscope Method 	Vibroscope-400, Lenzing, Austria	500.00	BISFA IS:10014Pt-2:1984 ASTM D 1577:07	20 Gm
4	Tensile Properties of single textile fibre / filament	Vibrodyn-400 Lenzing, Austria	500.00	BISFA ASTM D 3822 :07 ISO 5079	20 Gm

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				DIN 53816	
5	Crimp removal / Crimp contraction recovery and Crimp Stability	Vibrotex-300 Lenzing, Austria	500.00	As per instrument manual	20 Gm
6	Crimp Frequency (Arc / unit length)	Magnifying Glass	500.00	ASTM D 3937 :07	20 Gm
7	No. of Filaments	Magnifying Glass	300.00	Microscopy	20 Gm
8	Fused Fibres/ Undrawn Fibres • Dyeability Test • Microscopic Test	-----	800.00	In- House Method	100 Gm
9	Fibre Structure Analysis • Longitudinal • Cross Sectional	Microscope – Zeiss Microtome	500.00 1000.00	Microscopy	20 Gm
10	Fibre Hollowness	Microscope –Zeiss	600.00	Microscopy	20 Gm
11	Fibre Friction	NITRA Friction Tester	300.00	In House Method	50 Gm
12	Fibre Diameter	Microscope –Zeiss	500.00	Microscopy	50 Gm
13	Breaking Tenacity of manufactured fibres in loop & knot configuration	Vibroscope-400 Vibrodyne-400	800.00	ASTM D 3217:07	20 Gm
14	Fibre Shrinkage - Bundle test - Single Fibre Test	----	800.00	ASTM D 2102-02 ASTM D 5104-02	20 Gm

(II) Yarn Testing:-

S. N	Nature of Test	Instrument	Fee (`) per sample	Commonly used Methods	Sample Requirement
1	Linear Density of yarn by Skin Method	Wrap Reel & Electronic Balance	300.00	IS 1315:1977 Re05 ASTM D 1907: 07 IS 7703Pt 1:90 Re07	10 Bobbins / baby cones
2	Breaking Strength of yarn skin form	Lea strength	400.00	IS 1671:1977 Re 08	10 bobbins

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	(CSP)	Tester-KMI		ASTM D 1578-06	/Baby cones
3	Twist in yarn Untwist-Retwist Method Direct Counting	Electronic Twist Tester-statex	250.00	IS 832:1985 Re 06 ASTMD-1422-08 ASTM D-1423-08	10 Bobbins / Baby cones
4	Twist Balance	---	200.00	ASTM D 204-02	10 bobbins/ Baby cones
5	Tensile Properties of yarn by Single Strand Method <ul style="list-style-type: none"> • Breaking load, Tenacity & Elongation • Loop strength • Knot strength • Wet Tenacity 	UTR-4Swizerland UTM-350;SDL ,UK	500.00 500.00 500.00 500.00	IS 1670 : 91 Re 07 ASTM D 2256 M -09 IS 7703 Pt 2 :1990	10 bobbins/ Baby cones
6	Dynamic Strength & Elongation%	CTT , LHI-USA	500.00	CTT Instrument Manual	10 bobbins/ Baby cones
7	Yarn Unevenness Test <ul style="list-style-type: none"> • Evenness of Silver • Evenness of Roving • Evenness of Yarn with Imperfections and hairiness • Fabric simulation • Spectrogram analysis 	UT -5 SA 400 Zellweger Uster, Switzerland	400.00 500.00 600.00 600.00	ASTM D-1425 ASTM D : 5647-07 ISO 16549 :2004	10 bobbins/ Baby cones
8	Yarn Evenness & Hairiness	Lst,Keisokki	300.00	EIB Instrument Manual	10 bobbins/ Baby cones
9	Yarn Hairiness	EIB, Lawson- Hemphill, USA	300.00	EIB Instrument Manual	10 bobbins/ Baby cones
10	Co-efficient of yarn friction <ul style="list-style-type: none"> • Against metal /Ceramic • Yarn to yarn 	CTT; Lawson- Hemphill, USA	500.00 500.00	ASTM D 3108-07 ASTM D 3412-07	10 bobbins/ Baby cones
11	Yarn Faults classification Faults Collection	Keisokki Classifault	1000.00	ASTMD 6197-05	05 full cones
12	Electronic Yarn Grading	EIB , Lawson- Hemphill, USA	600.00	EIB Instrument Manual	10 Bobbins / Baby cones

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13	Yarn Hairiness at different threshold level	EIB , Lawson-Hemphill, USA	300.00	EIB Instrument Manual	10 Bobbins / Baby cones
13	Yarn Appearance Grade	ASTM Board	300.00	ASTM D 2255-09 IS 13260-93 Re08	10 Bobbins / baby cones
14	Lint Propensity Test	CTT: Lawson-Hemphill, USA	500.00	CTT Instrument Manual	10 Bobbins / Baby cones
S.	Nature of Test	Instrument	Fee (`) per sample	Commonly used Methods	Sample Requirement
15	Weak Spot Detection	CTT : Lawson-Hemphill, USA	500.00	CTT Instrument Manual	10 Bobbins / Baby cones
16	Identification of yarn	Microscopic	300.00	In –House method	1 Bobbin / baby cone
17	Contamination Check	Visual UV-Check Light	300.00	---	10 Bobbins / baby cones
18	Yarn Abrasion Test	CTT: Lawson-Hemphill, USA	600.00	CTT Instrument Manual	10 Bobbins / Baby cones
19	Thread Length per package	Wrap reel	400.00	ASTM D 3693-02 ASTM D 204-02	02 Packages
20	Elastic Properties of Blastomeric yarns	UTM -350 SDL UK	1200.00	ASTM D 2731-07	One baby package
21	Linear density of Blastomeric yarns	Linear density Apparatus ,	600.00	ASTM D 2591-07	1 Bobbin / Baby package
22	Thread Diameter	Microscope -Zeiss	400.00	ASTM D 204-02	1 Bobbin / Baby cone
23	Thread Shrinkage due to exposure to boiling water or dry heat	Drying & Treating Oven , Vertical stand with hook and tensioning weights	600.00	ASTM D 2259- 06 ASTM D 204-02 ASTM D 4974:04	10 Bobbins / Baby cones
24	Entanglement in Filament Yarn	EIB , Lawson-Hemphill, USA	500.00	ASTM D 4724 -09	10 Bobbins / Baby cones
25	Yarn on Yarn abrasion -Dry -Wet	----	1000.00 1000.00	ASTM D 6611-07	10 Bobbins / Baby cones
26	Elastic Properties of Elastic Yarn	-----	600.00	ASTM D 2731 -07	1 Bobbin /

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					Baby cone
27	Permanent deformation of elastic yarn	-----	500.00	ASTM D 3106-07	10 Bobbin / Baby cone
28	Identification of type of yarn	Microscope-Zeiss	500.00	In House Method	1 Bobbin / Baby cone
29	Fabric Simulation	EIB , Lawson-Hemphill, USA	1000.00	As per Instrument manual	10 Bobbins / Baby cones
30	Ticker No for sewing thread	---	500.00	ASTM D 3823 : 07	2 Bobbins / packages
31	Lycra %	---	500.00	In House Method	1 Bobbin / Baby cones

(III) Fabric/Garments Testing:-

S N	Nature of Tests	Instrument	Fee (`) per sample	Standard Method	Sample Requirement*
Woven / Knitted					
1	<u>Dimensions :</u> Fabric Width Thickness	Measuring Scale Thickness Tester	100.00 200.00	IS 1954-90 Re 07 ASTM D 3774 ISO-3932, DIN EN 1773 IS: 7702-75 Re 06	1 m X Full width 0.5mxFull width
2	<u>Determination of Mass</u> -Mass per unit area -Mass per linear meter	Electronic Balance GSM Cutter Measuring Scale	200.00	IS:1964-01 Re 06 ASTM D-3776 ISO 3801	0.5mxFull width 2m x Full width
3	Count /Crimp of yarn from fabric	Crimp Tester	300.00	IS 3442-80 Re 08	0.5mXfull width

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		Electronic Balance		ASTM D 1059-01 ASTM D 3883-08 ASTM D 3887	
4	<u>Threads per unit length</u> -Ends and Picks per unit length -Courses & wales / unit length -Total No Holes on Base & Bias within 6.25 Square area	Pick Glass	250.00 250.00 250.00	IS 1963-81 Re 2008 ASTM D 3775-08 BS 5441:1988 ISO 7211 / 2 ASTM D 3887-08 IS:4046Pt2:96 AppB4 IS :1431-73 App-A	0.5mxFull width
5	Loop / stitch length Course length	-	300.00 300.00	BS : 5441:1988	0.5mxFull width
6	<u>Breaking Strength & Elongation</u> -Cut Strip Method -Ravelled Strip Method -Grab Test -Modified Grab Test -Wide Width Tensile Strength	Tensile Strength Tester, UTM-350;SDL;UK	500.00	IS 1969-85 Re 2006 ASTMD 5035-06 ISO 5081 IWS TM 4 1996 ASTM D 5034-09 ASTM D 4355 ISO 10319 ASTM D 4595	0.5xFull width
7	<u>Tear Strength</u> -Falling Pendulum (Elmendorf-Type) Method -Single Rip(Tongue)Tear Method -Wing Rip Tear Method -Trapezoid tear Method	Elmendorf Tear Tester, Switzerland UTM-350;SDL;U.K	500.00	IS:6489-93 Re 08 ASTM D-1424-09 ISO 9290 ASTM D 2261-07 IWS TM 172-96 ASTM D 5587-07 ASTM D 4533	0.5mxFull width
8	<u>Bursting Strength</u> -Diaphragm Bursting -Ball Burst Test	Prolific Bursting Strength Tester UTM-350 SDL UK	500.00	IS 1966-75 Re 06, ASTM D 3787-07 IWS TM 29-96	0.5mxFull width

S	Nature of Tests	Instrument	Fee (`) per	Standard Method	Sample
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N			sample		Requirement*
9	<u>Resistance to Abrasion</u> -Flexing & Abrasion Method -Inflated Diaphragm Method -Martindale Abrasion Method -Oscillatory Cylinder Method	Universal Wear Tester;CSI; USA Martindale Abrasion Cum Pilling tester, SDL;UK Wyzenbeek Abrasion Tester, SDL -UK	1000.00 (Up to 20,000 cycles)	IS 12673: 89 ASTM D:3885-07 ASTMD:3886-9 ASTMD:4966-9 ASTM D : 4157-07	0.5xFull width
10	<u>Resistance to Pilling</u> -ICI Pilling Box Method -Martindale Method -Brush Pilling Method -Random Tumble Pilling Method	ICI Pilling Box (Tumble Type) Martindale Abrasion cum Pilling Tester, SDL;UK	500.00 500.00 500.00	IS 10971-84 Re 2006 ASTM D 4970-07 ASTM D 3511-08 ASTM D 3512-07 IWS TM 152-96 IWS TM 196-96	0.5mxFull width
11	Assessment of Drape	BTRA Drape Tester James H. Heal Drape Tester	600.00	IS 8357-77 Re 08 IWS TM 249-96	0.5mxFull width
12	Air Permeability	Air Permeability Tester-WIRA	500.00	IS 11056-84 Re 06 ASTMD 737:04Re 08 BS 5636 ISO 9237	0.5mx Full width
13	<u>Crease Recovery</u> -crease Recovery Angle	Crease Recovery Tester	500.00	AATCC-66 IS 4681-81Re 08 ISO 2313	0.5mx Full width
14	<u>Antistatic Resistance</u> - Surface Resistance - Half Decay Time	ROTHSCHILD Static Voltmeter Model-R-4021; Switzerland	500.00	Instrument Manual	0.5m x Full width
15	<u>Stiffness and Flexural Rigidity</u> -Cantilever Method	Stiffness Tester,	300.00	IS:6490-71 Re 08 ASTM D 1388-08	0.5mxFull width

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	-Heart loop Method	SDL ; UK	400.00	BS:3356	
16	Weave Analysis	Visual	400.00	ISO 3572	A4 size
17	Seam strength Resistance to slippage of yarns using a standard seam	UTM-350, SDL; UK	600.00	ASTM D 1683-07 ASTM D 434-95 ISO 13935-1 & 2 ISO 13936-1 & 2	0.5mxFull width
18	Tuft With-drawl force	Tuft withdrawal Tester SDL;U.K UTM350,SDL;U.K	400.00	ISO 4919,BS 5229 IWS TM 202	0.5mxFull width
19	Constant load elongation & permanent set	UTM350 SDL;UK	1000.00	ASTM D 6614-07	0.5mxFull width

S N	Nature of Tests	Instrument	Fee (`) per sample	Standard Method	Sample Requirement*
20	Fabric Friction -Static Friction -Dynamic Friction	NITRA Friction Tester	500.00	In House Method	0.5mxFull width
21	Bond/ Adhesion strength / Peel / shear strength	UTM-350 ,SDL;UK	600.00	ASTM D 2724-07 ASTM D 3936-05 ISO 4637 AATCC 136 ASTM D 3135:87 (2005)	0.5mx Full width
22	Spirality	Protector	300.00	IWS TM 276-96	1mxFull width
23	Bow and Skew in woven / Knitted Fabric	Measuring Scale	400.00	ASTM D:3882-08 ISO 16322-2 AATCC-179	1mxFull width
24	Elastic Properties - Fabric Stretch - Fabric Growth - Fabric Recovery	Stretch Recovery Tester	800.00	ASTM D 6614 :07 ASTMD 5278 :09 ASTM D2594:04 Re 08 ASTM D 3107:07 IWS TM179-96	0.5mxFull width
25	Cover Factor of Woven / Knitted Fabric	Crimp Tester	600.00	IWS TM 169-96	0.5mxFull width

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26	Puncture Resistance -CBR Puncture -Index Puncture	UTM -350 SDL –UK	800.00	ASTM D 4833 ASTM D 6261 ASTM D 6241	0.5mxFull width
27	Snagging Resistance	ICI Mace Snag Tester	1000.00	ASTM D 3939 : 09	0.5mxFull width
28	Type of yarn -Carded/ combed -Textured / Non Textured -OE/ Ring spun	Microscopes	2000.00 - -	In House Method	0.5mX full width
29	Terry Ratio in Terry towel	--	400.00	IS 7056 :1989 Re 07	01 towel
Carpets					
30	Mass per unit area (GSM)	GSM Cutter	250.00		25 Cm x 25 cm
31	Pile Height of carpets	Pile Height Gauges	300.00	IWS TM 20-96	A4 size
32	<u>Pile Weight per unit area</u> -Shorn Pile Method -Dissection Method	-----	400.00 500.00	IWS TM 234-96 IWS TM 216-96	25 Cm x 25 cm 25 Cm x 25 cm
33	Pile Thickness	Thickness Tester	300.00	IS 5884 :93 IWS TM 142-96	A4 size
34	Pile Density	Thickness Tester Scale , weighing balance	500.00	IS 5884 :93 IWS TM 285-96	25 Cm x 25 cm
35	Stitch and Gauge	Measuring Scale	400.00	IWS TM 140-96	
S N	Nature of Tests	Instrument	Fee (`) per sample	Standard Method	Sample Requirement*
36	Shorn pile weight / unit area Surface Pile Weight/ Unit Area of pile textiles (Dissection Method)	Physical Balance , Scale	500.00	IWS TM 15-96 IWS TM 21-96	25 Cm x 25 cm
37	Tuft With-drawl force	Tuft withdrawal Tester SDL;U.K UTM –50,SDL;U.K	400.00	ASTM D 1335-05 IS 5884 :93 ISO 4919-78 (E) , BS 5229 IWS TM 202	25 Cm x 25 cm

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38	Surface pile density of knitted /woven upholstery & bedding products	--	600.00	IWS TM 285-96	25 Cm x 25 cm
39	Percentage Pile Area of upholstery or bedding which have areas of pile and non pile	Steel Rule & Transparent paper	500.00	IWS TM 289-96	25 Cm x 25 cm
40	Pile Fabric Abrasion (Pile Retention / Loss)	Rotary Platform abrader	600.00	ASTM D 4685-07	25 Cm x 25 cm
41	Determination of thickness loss of textile floor covering after prolonged heavy static loading	Thickness Tester Static loading machine	400.00	BS 4939:1987 ISO 3416-1986	25 Cm x 25 cm

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