NORTHERN INDIA TEXTILE RESEARCH ASSOCIATION, GHAZIABAD

PHYSICAL QUALITY EVALUATION(PQE)LABORATORY

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
A. FIBRE TESTING		
I.	**Cotton**	
1.	Cotton Testing for Fibre fineness, length , Uniformity, Strength , Elongation , Short Fibre % and Colour Grade by HVI (HVI & ICC mode)	ASTM D 5867
2	Fibre Length Distribution by Array Method	ASTM D 1440 IS233Pt-2
3	Length & Length Uniformity by Optical scanning method	IS233Pt6 ASTM D 1447
4	Micronaire Value of cotton Fibre by Air flow method	IS 3674:1966 ASTM D 1448
5	Cotton Fibre Maturity by sodium hydroxide swelling method	IS 236 : 1968 ASTM D 1442
6	Breaking strength & Elongation of cotton fibre by Flat Bundle Method	IS 3675 :1966 ASTM D 1445
7	Lint and Trash Content in cotton by mechanical–pneumatic m/c	IS 4871 ASTM D 2812
8	Nep Content	IS 684
9	Colour Grade of cotton (Rd Value , + b Value)	ASTM D 5867
10	Differential dyeing behavior of cotton	ASTM D 1464:
11	Presence of Contamination	Visual Inspection
12	Microscopic structural analysis	AATCC-20
II.	**Manufactured Fibres**	
1.	**Length & length distribution of staple fibre** • Oil Plate Method • Self–Adhesive Tape Method • Array Method	BISFA / IS:10014Pt- 1 ASTM D5103
2.	Over Length Fibre %	ASTM D 3513
3.	**Linear density of single fibre / filament** • Cut & Weigh Method • Vibroscope Method	BISFA IS:10014Pt- 2: ASTM D 1577
4.	Tensile Properties of single textile fibre / filament	BISFA /ASTM D3822 ISO 5079 DIN 53816
5.	Crimp removal / Crimp contraction Crimp recovery and Crimp Stability	As per instrument manual
6.	Crimp Frequency (Arc per unit length)	ASTM D3937
7.	No. of Filaments	Microscopic
8.	**Fused Fibres/ Undrawn Fibres** • Dyeability Test • Microscopic Test	In- House Method
9.	**Fibre Structure Analysis** • Longitudinal • Cross Sectional	Microscopic
10.	Fibre Hollowness	In House Method
11.	Fibre Friction	In House Method
12	Breaking Tenacity of manufactured fibres in loop & knot configuration	ASTM D 3217
13	Fibre Shrinkage	ASTM D 2102

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
		ASTM D 5104
III.	**Wool and others**	
1	Fibre Length & length distribution of wool fibre	ASTM D 519 IS 1377 IS 8387 ASTM D 1575
2	Fibre Diameter of wool and other animal fibres	IS 744 ASTM D 2130 IWS TM 24
3	Wool Fibre-Fineness Grade	IS 5910 / IS 5911
4	Medullated Fibres in wool	IS 2899
5	Med and Kemp in wool and other animal fibres (Micro projection Method)	ASTM D 2968 IS :744
6	Crimp in wool	IS 6124
7	Staple length of wool	IS : 6653 :1973 Re 2005
8	Wool Fibre Diameter by Airflow method	IS 6919
9	Fibre Fineness of Clean Flex	ASTM D 7025
10	Breaking Tenacity of wool fibre Flat Bundle method	ASTM D 2524
11	Cashmere coarse hair content in cashmere	ASTM D 2816
12	Counting partial cleavages in wool and other animal fibres	ASTM D 4510
B. YARN TESTING		
1	Linear Density of yarn by Skin Method	IS 1315 ASTM D 1907
2	Breaking Strength of yarn skin form (CSP)	IS 1671 /ASTM D 1578
3	**Twist in yarn** Untwist-Retwist Method Direct Counting	IS 832 Pt 2 & 1 ASTM D-1422 ASTM D-1423
4	Twist Balance	ASTM D 204
5	**Tensile Properties of yarn by Single Strand Method** • Breaking load, Tenacity & Elongation • Loop strength • Knot strength • Wet Tenacity	 IS 1670 ASTM D 2256 IS 7703 Pt2
6	Dynamic Strength & Elongation %	CTT Instrument Manual
7	**Yarn Unevenness Test** • Evenness of Silver • Evenness of Roving • Evenness of Yarn with Imperfections and hairiness	 ASTM D-1425 ISO 16549
8	Yarn Evenness & Hairiness	EIB Instrument Manual
9	Yarn Hairiness	EIB Instrument Manual-
10	**Co-efficient of yarn friction** • Against metal /Ceramic • Yarn to yarn	 ASTM D 3108 ASTM D 3412
11	Electronic Yarn Grading	EIB Instrument Manual
12	Yarn Appearance Grade	ASTM D 2255 IS 13260

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
13	Lint Propensity Test	CTT Instrument Manual
14	Identification of type of yarn	In-House method
15	Contamination Check	In-House method
16	Thread Length per package	ASTM D 3693 ASTM D 204
17	Elastic Properties of Elastomeric yarns	ASTM D 2731
18	Linear density of Elastomeric yarns	ASTM D 2591
19	Thread Diameter	ASTM D 204
20	Thermal Shrinkage	ASTM D 2259 ASTM D 204 ASTM D 4974
21	Yarn on Yarn abrasion	ASTM D 6611
22	Elastic Properties of Elastic Yarn	ASTM D 2731
23	Permanent deformation of elastic yarn	ASTM D 3106
24	No of filaments in the yarn	In House Method
25	Ticker No for sewing thread	ASTM D 3823
26	Lycra %	In House Method
C. FABRIC/GARMENTS		
I.	**Woven/Knitted**	
1	**Dimensions :** Fabric Width / Length Thickness Dimensions of the Garment (upto 10)	IS 1954 ASTM D 3774 ISO-3932 DIN EN 1773 /IS: 7702
2	**Determination of Mass** -Mass per unit area -Mass per linear meter	 IS 1964 ASTM D-3776 ISO 3801
3	Count / Crimp of yarn from fabric	IS 3442 ASTM D 1059 ASTM D3883 ASTM D 3887
4	**Threads per unit length** -Ends and Picks per unit length -Courses & wales per unit length -Base & Biase	 IS 1963 /ASTM D 3775/BS 5441 /ISO 7211/ASTMD 3887IS 4046Pt2 app B4/IS :1431 App –A
5	Loop / stitch length Course length	BS : 5441:1988
6	**Breaking Strength & Elongation** -Cut Strip Method -Ravelled Strip Method -Grab Test -Modified Grab Test -Wide Width Tensile Strength	IS 1969 /ASTMD5035 ISO 5081/IWS TM 4 ASTM D 5034/ASTM D 4355 ISO 10319/ASTM D 4595
7	**Tear Strength**	IS:6489 ASTM D-1424

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
	-Falling Pendulum (Elmendorf- Type) Method -Single Rip(Tongue) Tear Method -Wing Rip Tear Method -Trapezoid tear Method	ISO 9290 ASTM D 2261/IWS TM 172 ASTM D 5587 /ASTM D 4533
8	**Bursting Strength** -Diaphragm Bursting -Ball Burst Test	IS 1966 Pt 1 & 2 ASTM D 3787 /ASTM D 6797 IWS TM 29 /BS 4768 ISO 9073(Pt-5)
9	**Resistance to Abrasion** -Inflated Diaphragm Method -Martindale Abrasion Method -Oscillatory Cylinder Method -Schopper Abrasion	IS 12673 ASTM D:3885 ASTMD:3886 ; ASTM D:4966 ASTM D 4157 DIN 53863 Part 2 GME 60345 /GMW 3283 PV 3908
10	**Resistance to Pilling** -ICI Pilling Box Method -Martindale Method -Brush Pilling Method -Random Tumble Pilling Method	IS 10971/ASTM D 4970 ASTM D 3511/ASTM D 3512 /IWS TM 152 /IWS TM 196 /ASTM D 3512 / ISO 12945-1 & 2 DIN53867
11	Assessment of Drape	IS 8357 IWS TM 249
12	Air Permeability	IS 11056 ASTM D 737 BS 5636 /ISO 9237
13	**Crease Recovery** -crease Recovery Angle -After 3 wash	IS 4681/ISO 2313 ISO 9867
14	**Stiffness and Flexural Rigidity** -Cantilever Method -Heart loop Method -Circular Bend Procedure	IS:6490-71 Re 2008 ASTM D 1388/ BS:3356 /ASTM D 4032
15	Type of Weave Weave Analysis	ISO 3572
16	Seam strength / Seam Slippage	ASTMD1683/ASTMD 434 ISO 13935-1&2
17	Tuft With-drawl force	ISO 4919,BS 5229 IWS TM 202
18	Constant load elongation & permanent set	ASTM D 6614
19	**Fabric Friction** -Static Friction -Kinetic Friction	ASTM D 1894 ISO 8295
20	Adhesion strength / Peel strength	ASTM D 2724 /ASTM D 3936 ISO 4637 /AATCC 136 /ASTM D 3135

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
21	Spirality	IWS TM 276-96
22	Bow and Skew in woven / Knitted Fabric	ASTM D:3882 ISO 16322-2 AATCC-179
23	Fabric Stretch ,Fabric Growth & Fabric Recovery	ASTM D 6614 /ASTMD 5278 /ASTM D2594 /ASTM D 3107 /IWS TM179
24	Cover Factor of Fabric	IWS TM 169
25	**Puncture Resistance** -CBR Puncture -Index Puncture	ASTM D 4833 ASTM D 6261 ASTM D 6241
26	Snagging Resistance	ASTM D 3939
27	**Type of yarn** -Textured / Non Textured -OE/ Ring spun / Elli twist /Air jet	In House Method
29	Pile Ratio in Terry towel	IS 7056 :1989
30	Cut Resistance Test	BS EN 388
31	Streak Analysis	
32	Mass per unit area (GSM)	-
33	Pile Height of carpets	IWS TM 20
34	**Pile Weight per unit area** -Shorn Pile Method -Dissection Method	IWS TM 234 / IWS TM 216
35	Pile Thickness	IS 5884 IWS TM 142
36	Pile Density	IS 5884 :93 IWS TM 285
37	Stitch and Gauge	IWS TM 140
38	Shorn pile weight / unit area Surface Pile Weight/ Unit Area of pile textiles (Dissection Method	IWS TM 15/ IWS TM 21
39	Tuft With-drawl force	ASTM D 1335 IS 5884 /ISO 4919-1978 (E) , BS 5229 IWS TM 202
40	Surface pile density of knitted /woven upholstery & bedding Products	IWS TM 285
41	Percentage Pile Area of upholstery or bedding which have areas of pile and non pile	IWS TM 289
42	Pile Fabric Abrasion (Pile Retention / Loss)	ASTM D 4685
43	Determination of thickness loss of textile floor covering after prolonged heavy static loading	BS 4939 ISO 3416
FACE MASK TESTING		
44	Resistance to penetration by synthetic blood/ Splash resistance for surgical mask	IS 16289 Annex D, ASTM F 1862, ISO 22609

S. No.	Nature of Test (Test Parameter)	Commonly Used Test Method
45	Differential pressure, mm H2O/cm2 for surgical mask	IS 16289: 2014, Annex C, EN 14683:2019, Annex C

Note:

Tests are being carried out as per IS, ASTM, DIN, ISO, JASO, BS, AATCC, EN, HONDA, HES, SES, NES,GM, KIA Standards, Defence, DGS&D, UIC and any other method as per the party's request.

Physical Quality Evaluation Lab may also create facilities of tests other than above as per the requirement of parties.

Before sending the sample, please ensure that sample selected represents the lot.

For further necessary details please contact NITRA labs.