

**RESEARCH PROJECTS UNDERTAKEN BY THE MAN-MADE TEXTILES
RESEARCH ASSOCIATION (MANTRA) SINCE INCEPTION : LIST OF R&D
PROJECTS (COMPLETED) SINCE INCEPTION (1981)**

Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
1	To study the effect of chemical modification of guar gum on cracking, moisture retention, dye	13.11.81	3 years	Chemical processing	Decentralised process houses
2	Modification of nylon	13.11.81	3 years	Chemical processing	Decentralised process houses
3	Discharge printing of nylon & polyester fabrics	13.11.81	3 years	Chemical processing	Decentralised process houses
4	Blending of polyester with silk to replace T.T.F yarns & fabrics	13.11.81	3 years	Yarn, filament and twisting	Weaving preparatory (twisting), mill sector
5	Effect of twist on physical properties of nylon, viscose and polyester filaments & of fabrics made from these filaments	13.11.81	3 years	Filament, yarn and twisting	Wvg.Pre.(twisting) powerloom, mill sector
6	To standardise the construction of fabric woven from filament yarn to achieve optimum set	13.11.81	3 years	Weaving prep; (twisting, powerloom and mill sector	Decentralised process houses
7	Effect of resin and finishing agents on nylon and polyester.	29.11.85	3 years	Chemical processing	Decentralised process houses
8	Determination of viscosities of nylon/polyester/acrylic	29.11.85	2 years	Raw material testing, fibre/filament testing	Textile industry

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
9	Standardisation of the processing conditions for crimping/texturising of nylon & polyester filament yarns.	29.11.85	3 years	Filament, yarn and draw texturising, crimping	Texturising units
10	Computer colour matching	13.11.81	3 years	Chemical processing computer colour matching	Decentralised process houses
11	Preparation of multi-filament yarns with varying number of filaments & twist/crimp/texturise the same	29.11.85	2 years	Yarn, melt spinning, filament draw texturising, twisting, crimping	Textured units, weaving preparatory (twisting) units
12	Performance evaluation and utility of polypropylene fibre fabrics	30.11.88	2 years	Weaving	Mill sector
13	To study the effect of various intermingling parameters of physical properties of draw textured filament yarn.	20.02.89	2 years	Filament, yarn and draw texturising	Texturising units
14	Critical evaluation of parameters on preparation and coloration of anionically modified polyethylene terephthalate	20.02.89	2 years	Chemical processing	Decentralised process houses
15	Optimisation of processing parameters of texturised cationic dyeable polyester	02.06.89	2 years	Filament, yarn and draw texturising	Texturising units, decentralised process houses & powerlooms

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
16	Influence of melt spinning and draw texturing process parameters on dye non-uniformity in textured yarn fabric	02.06.89	2 years	Melt spinning, draw texturising, dyeing, weaving, knitting	Texturising units, powerlooms
17	Cost economy in energy conservation in sizing of continuous filament yarn made from these filaments	02.06.89	2 years	Sizing and energy conservation	Sizing units
18	Melt blending polyester to improve physical properties for better performance	05.02.90	3 years	Melt spinning, texturising	Spg. & wvg.prep.units, texturising units, powerlooms and mill sector
19	Preparation of blended fancy yarn using airjet texturing machine	05.02.90	3 years	Filament, yarn, and air-texturising	Texturising units and powerlooms
20	Application of electronic controller for warp protection mechanism	05.02.90	2 years	Weaving machinery	Machinery manufacturing and powerlooms
21	Laboratory simulation of progressive deterioration of synthetic textiles	06.10.90	2 years	Chemical processing, weight reduction process	Decentralised process houses
22	Performance evaluation of various types of friction discs	06.11.90	2 years	Filament, yarn and draw texturing	Texturising units

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
23	Effect of humidification on weavability of synthetic yarns	15.01.91	2 years	Process control, in loomshed and weaving	Powerloom mill sector
24	Finishing of nylon fabric to achieve durability	15.01.91	2 years	Chemical processing	Decentralised process houses, mill sector
25	Role of auxiliaries in washing off of printed nylon and polyester fabrics	12.07.91	2 years	Chemical processing	Decentralised process houses
26	Analysis & control of dyeing variable key value according to substrate & class of dyestuff for energy conservation	12.07.91	2 years	Chemical processing machinery	Processing machinery manufacturers, decentralised process houses
27	Quantification of gloss – conventional and unconventional methods	02.12.91	2 years	Textile testing	Decentralised process houses
28	Standardise the processing conditions for texturing of profiled and micro denier filament yarn	02.12.91	2 years	Draw texturing	Texturising, weaving preparatory
29	Study the industrial colour tolerance in textile industry and development of industrially viable method for quality control	02.12.91	2 years	Process control, computer colour matching	Decentralised process houses, exporters and mill sector

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
30	Study the feasibility of converting conventional throw shuttle loom to continuous weft insertion system with a view to improve fabric quality and weaver's productivity	29.07.92	2 years	Weaving machinery	Powerloom mill sector
31	Water conservation and management in wet processing	29.07.92	2 years	Pollution control	Decentralised process houses & mill sector
32	Optimisation of twist setting techniques	29.07.92	2 years	Weaving preparatory process	Weaving preparatory and powerloom units
33	To study the effect of heatsetting of anionically modified polyester with a view to optimise salt content requirement	29.07.92	3 years	Process control, chemical processing	Decentralised process houses
34	Designing of low cost two-for-one twister for fine denier high twist application for filament yarns	16.09.93	2 years	Yarn preparatory, twisting machinery	Yarn preparatory units
35	Designing and fabrication of a device to eliminate end to end tension variations in sectional warping machine for filament yarns	16.09.93	2 years	Sizing, chemical processing	Sizing units and process houses

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
36	Comparative performance evaluation of sizing ingredients based on PVA/acrylate formula-tion with that of soluble polyester based formulations for sizing of filament yarn	16.09.93	2 years	Sizing, chemical procesing	Sizing units and process houses
37	Low temperature open bath dyeing of polyester using a novel technique according to substrate and class of dyestuff for energy conservation	30.06.94	2 years	Chemical processing	Decentralised process houses
38	Establishment of correlation between feeder yarn characteristics and its performance	30.06.94	2 years	Filament yarn and draw texturising	Texturising units
39	Optimisation of draw texturing and draw twisting parameters for production of fabrics	30.06.94	2 years	Texturising and draw twisting process	Texturising, twisting and yarn prep.units and powerlooms
40	Utilisation of solid waste (Municipal & Textiles) for energy conservation	28.08.95	2 years	Pollution control & energy conservation	Decentralised process houses and general industry
41	Modification of stenter machine to improve efficiency and energy conservation	28.08.95	2 years	Chemical processing machinery	Processing machinery manufacturers and decentralised process houses

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
42	Pollution control and eco-friendly measures for the decentralised textile sector in South Gujarat	28.08.95	2 years	Eco-testing and pollution control	Decentralised process houses and society in general
43	Dyebath reuse and colour removal	08.08.96	2 years	Chemical processing, pollution control	Decentralised process houses and mill sector
44	Development and production technologies for different fibre reinforced materials	08.08.96	2 years	Technical textiles	Machinery industry and general industry
45	Air-jet texturing of micro- filament polyester yarn	08.08.96	2 years	Yarn, filament and air-texturing	Texturing units and powerlooms
46	Methodology to estimate the presence of banned chemicals in the cotton, nylon and polyester yarn/fabrics exported from South Gujarat region	24.07.97	1 year	Eco-testing/pollution control	Decentralised process houses, exporters, dye manufacturers and society in general
47	Development of polyester mixed yarn by airjet texturing and other novel techniques in various combinations with silk and other fibres and the study of their structure-property and end-use	22.09.97	2 years	Filament, yarn and airjet texturing	Texturing units, powerlooms and mill sector

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
48	A study on the manufacture of polyester-silk union woven fabric and fabric using different novel polyester mixed yarns with different constructional characteristics and their performance analysis using conventional methods and FAST system	22.09.97	2 years	Weaving	Powerlooms and mill sector
49	Effect of different methods of effluent treatments and chemical dosing on water pollution paramters in the effluent of synthetic textile process houses in South Gujarat	21.07.98	2 years	Eco-testing/pollution control	Process houses, society in general
50	A study on the noise pollution and its control in the loomsheds in the decentralised powerloom industry in and around Surat	21.07.98	2 years	Eco-testing/pollution control	Powerlooms, machine manufactures and society in general
51	Standardisation of dyeing of micro-denier polyester fabrics &an attempt to improve dye fastness properties	21.07.98	2 years	Chemical processing	Decentralised process houses, exporters
52	Development of combination yarns from differentially shrinkable yarns using air-jet texturising & peformance evaluation of fabrics made	21.07.98	2 years	Filament, yarn, airjet texturing, and weaving	Yarn preparatory units, texturising units, powerlooms and mill sector

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
53	Development of new look synthetic filament yarns on false twist texturiser for value added fabrics.				
54	To study the toxicity of various chemicals, finishing agents & auxiliaries used in textile processing and bio-assay study of different anti-bacterial finished fabrics.				
55	Bio-technological applications in textiles for quality improvement and value addition.				
56	Characterisation of amine based and other acid and disperse dye intermediates by creation of impurity profile using GC-MS & HPTLC and AAS systems.				
57	Development of economical thickener for printing synthetic fibre fabrics by replacing guar gum fully or partially with other alternatives.				
58	Development of continuous synthetic sewing thread by airjet texturing for domestic as well as export garment sector.				
59	A study on the comfort properties of the woven fabrics produced in diff. Weave constructions using yarns of different structural characteristics.				

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
60	To develop eco-friendly substitute products for the dyeing & printing of synthetic fabrics & to reduce the pollution load of the effluent.				
61	Development of air intermingled elastane combination yarns of stretch fabrics.				
62	Application of formaldehyde free finishes to man-made fibre fabrics such as tencel, viscose, polyester & their blends and performance evaluation of the finished fabrics.				
63	Flame retardant finishing based on eco-friendly formulations, viscose, polyester and their blends.				
64	Application of cationic dye to anionically modified nylon and their performance evaluation in comparison with cationic dye dyeable polyester and regular nylon with special reference to fastness properties.				
65	Development of novel stack-disc friction units made from the combination of polyurethane (soft) friction discs with other hard-materials friction discs & quality evaluation of draw-textured yarns made therefrom.				

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
66	Development of light weight reusable protective fabrics from micro-denier synthetic filament yarns.				
67	Development of canvas fabric from high tenacity air textured synthetic yarns.				
68	Improvement in chemical processing technology of modified rayon (filament and modal fibre fabrics and enhance the realization and entire value chain.				
69	Development of anti-allergenic protective clothing for use in bed sheets, pillows and mattress casing.				
70	Development of commercial quality green-house shade cloth for low poly-house for controlled crop production.				
71	Application of suitable cost effective technology for reuse of water jet effluent.				
72	Smart fabric/garment products with smart colours for security label.				
73	Development of eco-friendly recyclable bio-degradable value added technical textiles from banana yarn.				
74	Polylactic Acid Fibres in technical textile applications for packaging and disposable food containers.				
75	Development of cost effective filter fabrics suitable for bag filters.				

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Sl. No.	Name of the project	Date of approval	Actual duration (in years)	Research subject area	Beneficiary industry
76	Development of fabrics made from PTT yarn and to optimize processing parameters to use in apparel sector including cost effectiveness.				
77	Application of nano technology for delustering of bright polyester fabric varieties.				
78	Development of enzymatic technique for weight reduction of polyester.				
79	Development of multi-layer fabrics for sportswear.				
80	A value chain on utilization of banana pseudostem for fibre and other value added products.				
81	Development of viscose & lyocell project.				
82	To phase out CTC from decentralized textile processing sector.				
83	Development of micro-organisms detecting fabric disc.				
84	Development of innovative fabrics made from PTT yarn and to set processing parameters for them.				
85	Development of Banana fabric suitable for extreme cold weather conditions by Plasma Technology.				
86	Development of laminated products for inflatables.				
87	Development of coagulation using modified Bentonite and recycle and reuse of effluent in textile processing.				