

R & D PROJECTS CARRIED OUT AT SASMIRA IN THE LAST TEN YEARS (1999 TO 2010)

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
1	Print paste re-utilisation scheme for the decentralised sector	1999	2	Process development	<ul style="list-style-type: none"> ● Reutilisation of print paste achieved speedily using left-over paste to reduce cost of processing and also pollution load on environment ● Software developed for reutilisation using spectrophotometer and reflectance data – processing software
2	Development of technique for dyeing cum sizing in package form to facilitate production of striped shirting in decentralised sector	1999	1	Process Development	<ul style="list-style-type: none"> ● A simple technique for simultaneous sizing and package dyeing of cotton warp yarn is developed ● This will enable the powerloom weavers to produce small weaver's beam with coloured warp for stripe effect and design flexibility
3	Development of software to evaluate output from the yarn evenness tester for assessing the magnitude of evenness fault analysis and for pinpointing specific areas for corrective action	1999	2	Software Development	<ul style="list-style-type: none"> ● Software developed to compare the yarn quality in terms of evenness and imperfection with respect to the world norms ● The software also suggests corrective actions to improve the yarn quality ● The output on yarn quality in simple form like snake charts and digital output
4	Designing high performance into polyester viscose blended fibre fabric	1999	2	Product development	<ul style="list-style-type: none"> ● Cross-linking with silicone softeners was done to improve fabric handle and reduce pilling of P/V blended fabrics ● Other performance were not adversely affected by the above said treatment

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
5	Development of blue wool standard and grey scale standard for evaluation of fastness properties of textiles	1999	2	Standardisation	<ul style="list-style-type: none"> Blue wool and grey scale standard for assessing light fastness properties developed indigenously Developed standards conform to international standards Cheaper alternative with saving of foreign revenue
6	Development of contour woven socks for DRDL	1999	2	Product development	<ul style="list-style-type: none"> Developed socks from quartz fibre
7	Developing scientific database and recipe prediction software for computer colour matching on polyester, viscose and its blend for the process houses in the decentralised sector.	2000	2	Software development	<ul style="list-style-type: none"> Database using disperse dyes was developed on polyester substrates (tops, tows, filaments, staple fibre and fabrics) of various deniers With reference to the database a series of recipes can be predicted with the help of computer
8	Indigenisation of woven geogrid manufacturing technology	2000	2	Product & Process development	<ul style="list-style-type: none"> Technology of weaving geogrids on powerlooms with lappet attachment from HT polyester yarns established Methodology of coating this mesh structure with PVC plastisols successfully accomplished
9	Development of an indigenous airbag fabric for automotive safety	2000	2	Product Development	<ul style="list-style-type: none"> Airbag fabrics varieties developed from Nylon 6 and Nylon -6,6 Heavier and lighter fabric varieties woven Found comparable with the commercial fabric varieties in functional performance
10	Producing dope dyed polyester from recycled PET waste for use in automotive interior textiles	2000	2	Product Development	<ul style="list-style-type: none"> Moulded carpet in specific shades for auto-interiors have been developed. Dope dyed polyester staple fibres are also used for making products like Blankets, Filter, Shoe upper and Geo-textiles

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
11	To develop standard depth and whiteness scales on textile substrates.	2000	2	Standardisation	<ul style="list-style-type: none"> ● Import substitution of commercially available standard depth scale and whiteness index scale for evaluation of colour fastness characteristics.
12	Development of E-glass contour woven socks	2000	2	Product Development	<ul style="list-style-type: none"> ● Developed technology for socks from E-glass yarn
13	Design and Development of low energy open width dyeing machine for batch dyeing of natural and synthetic fabrics.	2001	2	Product development	<ul style="list-style-type: none"> ● Developed low energy dyeing machine on ultrasound technology ● Applied for patent on the technology developed ● Extensive trials undertaken ● Product being commercialised
14	Development of chemical protective fabrics based on activated carbon fibres from cheaper sources	2001	2	Product development	<ul style="list-style-type: none"> ● The activated carbon fibre developed from nonwovens viscose after optimisation of process had high adsorbency for chemicals (carbon tetrachloride adsorption ranges from 40% to 80%). This Activated carbon was used to develop Anti pollution mask for vehicle riders, Respirators for industry workers, facelet mask for chemical warfare (CW) agent adsorption etc.
15	Development of UV resist water proof breathable coating as protective textiles	2001	2	Product development	<ul style="list-style-type: none"> ● Nylon fabric as such gives poor sun protection and hence it is essential to be treated with a UV protecting auxiliary. Finishing treatments to impart both UV resistance and water repellency have shown encouraging results.
16	Reducing pollution by recycling decolourised exhaust dye liquor	2001	2	Process development	<ul style="list-style-type: none"> ● The use of nanofiltration technique for removal of dye particles from the exhaust dye liquor is demonstrated. The technique is successful for most of the reactive dyes. The dyes for which the technique fails, flocculation of dye particles before nanofiltration can be used. The obtained fluid is suitable for redyeing.

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
17	Development of calibrated colour-viewing cabinet (CVC) with metamerism scale for the process houses and garment manufacturer	2001	2	Instrumentation	<ul style="list-style-type: none"> • A colour viewing cabinet with voltage stabilizers and CIE approved light sources (seven different illuminants) has been developed indigenously. This cabinet can be utilized in process houses/export houses to view the sample under different light sources. Metameric scale used to judge the degree of metamerism has also been developed.
18	Speciality yarns from recycled PET bottles using different spinning techniques	2001	2	Product development	<ul style="list-style-type: none"> ○ Trials have been taken to produce filament yarn from PET bottle wastes. Such yarns may be used in production of tapes, luggage fabrics, etc. Staple fibres for DREF and Rotor spinning have also been developed starting from PET bottle wastes.
19	Development of Special Finishes (WR, FR and Antistatic) on Parachute Textiles	2001	2	Process Development	<ul style="list-style-type: none"> • Developed special finishes like FR, WR and AS on nylon parachute fabrics, tapes, cords, sewing threads • Optimised the recipe for special finishes
20	Development of contour woven socks for DRDL	2001	2	Product Development	<ul style="list-style-type: none"> • Developed technology for socks from glass yarn
21	Development of contour woven socks for CPDC	2001	2	Product Development	<ul style="list-style-type: none"> • Developed technology for socks from E-glass yarn
22	Development of contour woven socks for LCA Radome for ADA	2001	2	Product Development	<ul style="list-style-type: none"> • Developed technology for LCA radome from Kevlar
23	Development ballistic protective fabric for soft armour	2002	2	Product Development	<ul style="list-style-type: none"> • Ballistic protective fabrics from Ultra High Modulus Polyethylene have been developed.
24	Development of multi-layer protective garments for multifunctional usage as sportswear and leisurewear.	2002	2	Product development	<ul style="list-style-type: none"> • Multilayer garments were developed using combination of viscose and polyester yarns. The fabric had good absorption & dissipation of sweat making the wearer comfortable for sportswear.
25	Energy conservation in preparatory and finishing processes for natural and synthetic fabrics by application of ultrasonic technique for the decentralised sector	2002	2	Process development	<ul style="list-style-type: none"> • The project has developed a methodology for conservation of the auxiliaries, water and energy used in preparatory and finishing processes of natural and synthetic fibre fabrics by means of ultrasonics. The process has been established for enzymatic desizing, scouring and biofinishing of cotton.

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
26	Design and Development of Table – top model of Light fastness testing instrument	2004	2 years	Product Development	<ul style="list-style-type: none"> • Design and development of table top model of light fastness tester • Quick sample mounting and compact model
27	Indigenous development of geotextiles for pavement overlaying	2005	18 months	Product development	<ul style="list-style-type: none"> • Development of polypropylene and polyester geotextiles in nonwovens, woven and grid forms to improve service life of roads • Field trials of the developed nonwoven geotextiles have demonstrated their effectiveness
28	Development of zero effluent process for dye-houses	2005	18 months	Process development	<ul style="list-style-type: none"> • The use of nanofiltration and flocculation techniques suitably for not only reactive but various classes of dyes to recycle exhaust dye liquor will be established. The same will be extended for preparatory and finishing process of wet processing.
29	Design & Development of Xenon filled solar simulator light fastness testing instrument for textiles	2005	1 year	Product Development	<ul style="list-style-type: none"> • Indigenous Development of xenon filled solar simulator for textile applications
30	Design and Development of Ultrasonic Transducers and Generators for Textile Applications	2005	2 years	Product Development	<ul style="list-style-type: none"> • Design and development of ultrasonic transducer and generators for textile applications • Retrofitting the developed transducers on winch dyeing machine • Intensive trials on dyeing ongoing
31	Development of quartz fibre fabric for DRDL	2005	1 year	Product Development	<ul style="list-style-type: none"> • Development of fabric from quartz fibre
32	Development of Aramid socks for HAL	2005	2 years	Product development	<ul style="list-style-type: none"> • Development of Aramid socks ongoing

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
33	Design and development of Instruments for predicting fabric Tailorability	2005	18 months	Product Development	<ul style="list-style-type: none"> • Prototype of instrument for evaluating fabric low stress mechanical properties developed. • This helps to evaluate fabric tailorability
34	Design and development of membrane type solute separation equipment for textile industry to reduce pollution and facilitate recycling of chemicals and to conserve water during wet processing	2005	18 months	Product Development	<ul style="list-style-type: none"> • Laboratory trials being carried out using different membrane techniques • Prototype of membrane system developed
35	Indigenous manufacturing of woven geotextiles for ground improvement using vertical drain technique	2007	24 months	Product development	<ul style="list-style-type: none"> • Installation of developed Vertical Drains and their onsite performance. • The development of drains for achieving quick stabilization of wet soil would be carried out under this project. • Field trials ongoing
36	Low cost Upgradation of first generation imported shuttless looms and indigenous shuttles looms for decentralised sector for enhanced productivity and quality	2007	24 months	Product development	<ul style="list-style-type: none"> • Pick-Finding System, Auto-shed leveling system and Reed Inclination system fabricated. • Field trials ongoing
37	Developing fabrics with thermoregulatory properties using phase change materials (PCM) for speciality application	2007	24 months	Product development	<ul style="list-style-type: none"> • Application of phase change material on fabric substrates. • Field trials ongoing
38	Design & Development of Creep Testing Apparatus for Geotextile	2007	24 months	Instrument development	<ul style="list-style-type: none"> • A instrumental set – up for evaluating creep properties of geotextiles developed
39	Design and Development of Clamping devices for testing tensile properties of High strength Technical textile fabrics	2007	24 months	Product Development	<ul style="list-style-type: none"> • Wide width clamps for griping high tenacity technical textiles developed

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
40	Development of Durable, Breathable and Barrier Work wear Fabrics for Agrotextile Applications	2008	24 months	Product development	<ul style="list-style-type: none"> • Workwear for agricultural applications with functional properties developed.
41	Development of Specialty Fabric for Water conservation and Soil Erosion Control used in Horticulture Application	2008	24 months	Product development	<ul style="list-style-type: none"> • Fabric structures developed have been taken up for field trial for Long term crop Mango plantation and Short term crop Okra plantation
42	Indigenous Development of Ultrasonic Device(S) for Maintenance of Weaving Accessories	2008	24 months	Instrument development	<ul style="list-style-type: none"> • Single bath ultrasonic device for cleaning of weaving accessories developed
43	Application of Supercritical Fluid (SCF) for Dyeing	2009	24 months	Process Development	<ul style="list-style-type: none"> • Dyeing of cotton substrates using supercritical carbon dioxide carried out. • Evaluation of the dyed substrates ongoing.
44	Development of PET/ nanoclay nanocomposite for barrier packaging	2009	24 Months	Product Development	<ul style="list-style-type: none"> • Nanocomposite developed using PET / Nanoclay
45	Dyeing of Polypropylene using Nanotechnology	2009	24 Months	Process Development	<ul style="list-style-type: none"> • Introduction of nanoparticles into polypropylene pellets is done. • Dyeing and surface characteristics are being studied
46	Evaluating compatibility & establishing methodology for simultaneous functional finishes for textile	2009	24 Months	Product development	Compatibility of simultaneous functional properties on standard substrates like cotton, nylon carried out and evaluation ongoing.
47	Development of reflective Agrotextiles for Sun management	2009	24 Months	Product Development	<ul style="list-style-type: none"> • Reflective screens used for Agrotextiles which are mainly imported evaluated.

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
48	Design of processing sequence suitable for embroidered fabrics incorporating embellishments	2009	24 Months	Process Development	<ul style="list-style-type: none"> The procured embroidery / jari / sequins and other embellishment are being carried out. Developing a standard processing sequence is in process
49	Standardisation of Norms for Agricultural Shade Net	2009	24 Months	Standardisation	<ul style="list-style-type: none"> Shade nets constructions used in different agriculture application is under evaluation vis-à-vis existing test methods. New methods for measuring light shading percentage derived
50	Commissioning and Installation of 2No's already developed Ultrasonic low energy dyeing technique	2009	12 Months	Commercialisation	<ul style="list-style-type: none"> SASMIRA developed ultrasonic dyeing system has been installed in one process houses for commercial viability study.
51	Commissioning and Installation of 2 No's already developed membrane separation system for textile Industry to reduce pollution by recycling water	2009	12 Months	Commercailaisation	<ul style="list-style-type: none"> SASMIRA developed Membrane filtration system has been installed in two process houses for commercial viability study.
52	Development of super absorbent polymer fibre mats for water management in horticulture applications	2010	24 Months	Product Development	<ul style="list-style-type: none"> Various nonwoven fibre mats suitable for ground covers using Superabsorbent Polymers are being studied.
53	Establishment correlation on UV stability of Technical Textiles under different exposure conditions	2010	24 Months	Standardisation	<ul style="list-style-type: none"> Weathering test carried out on Technical textile is being studied
54	Development of electrically conductive PET/CNT nanocomposite film	2010	24 Months	Process Development	<ul style="list-style-type: none"> Incorporation of CNTs in polyester matrix is being studied
55	Commercialisation of developed Table-Top Light Fastness Tester	2010	12 Months	Commercialisation	<ul style="list-style-type: none"> To install the developed Table-Top Light Fastness Tester in the test houses for commercialisation study.

