

**R & D PROJECTS CARRIED OUT AT SASMIRA IN THE LAST TEN YEARS (2004 TO 2014)**

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
1	Design and Development of Table – top model of Light fastness testing instrument	2004	2 years	Product Development	<ul style="list-style-type: none"> <li>• Design and development of table top model of light fastness tester</li> <li>• Quick sample mounting and compact model</li> </ul>
2	Indigenous development of geotextiles for pavement overlaying	2005	18 months	Product development	<ul style="list-style-type: none"> <li>• Development of polypropylene and polyester geotextiles in nonwovens, woven and grid forms to improve service life of roads</li> <li>• Field trials of the developed nonwoven geotextiles have demonstrated their effectiveness</li> </ul>
3	Development of zero effluent process for dye-houses	2005	18 months	Process development	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
4	Design & Development of Xenon filled solar simulator light fastness testing instrument for textiles	2005	1 year	Product Development	<ul style="list-style-type: none"> <li>• Indigenous Development of xenon filled solar simulator for textile applications</li> </ul>
5	Design and Development of Ultrasonic Transducers and Generators for Textile Applications	2005	2 years	Product Development	<ul style="list-style-type: none"> <li>• Design and development of ultrasonic transducer and generators for textile applications</li> <li>• Retrofitting the developed transducers on winch dyeing machine</li> <li>• Intensive trials on dyeing ongoing</li> </ul>
6	Development of quartz fibre fabric for DRDL	2005	1 year	Product Development	<ul style="list-style-type: none"> <li>• Development of fabric from quartz fibre</li> </ul>
7	Development of Aramid socks for HAL	2005	2 years	Product development	<ul style="list-style-type: none"> <li>• Development of Aramid socks ongoing</li> </ul>

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
8	Design and development of Instruments for predicting fabric Tailorability	2005	18 months	Product Development	<ul style="list-style-type: none"> <li>• Prototype of instrument for evaluating fabric low stress mechanical properties developed.</li> <li>• This helps to evaluate fabric tailorability</li> </ul>
9	Design and development of membrane type solute separation equipment for textile industry to reduce pollution and facilitate recycling of chemicals and conserve water.	2005	18 months	Product Development	<ul style="list-style-type: none"> <li>• Laboratory trials being carried out using different membrane techniques</li> <li>• Prototype of membrane system developed</li> </ul>
10	Indigenous manufacturing of woven geotextiles for ground improvement using vertical drain technique	2007	24 months	Product development	<ul style="list-style-type: none"> <li>• Installation of developed Vertical Drains and their onsite performance.</li> <li>• The development of drains for achieving quick stabilization of wet soil would be carried out under this project.</li> </ul>
11	Low cost upgradation of first generation imported looms and indigenous shuttles looms for decentralize sector for enhanced productivity and quality	2007	24 months	Product development	<ul style="list-style-type: none"> <li>• Pick-Finding System, Auto-shed leveling system and Reed Inclination system fabricated.</li> </ul>
12	Developing fabrics with thermoregulatory properties using phase change materials (PCM) for speciality application	2007	24 months	Product development	<ul style="list-style-type: none"> <li>• Application of phase change material on fabric substrates.</li> </ul>
13	Design & Development of Creep Testing Apparatus for Geotextile	2007	24 months	Instrument development	<ul style="list-style-type: none"> <li>• A instrumental set – up for evaluating creep properties of geotextiles developed</li> </ul>

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
14	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"> <li>• Wide width clamps for gripping high tenacity technical textiles developed</li> </ul>
15	Development of Durable, Breathable and Barrier Work wear Fabrics for Agrotextile Applications	2008	24 months	Product development	<ul style="list-style-type: none"> <li>• Workwear for agricultural applications with functional properties developed.</li> </ul>
16	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"> <li>• Fabric structures developed have been taken up for field trial for Long term crop Mango plantation and Short term crop Okra plantation</li> </ul>
17	Indigenous Development of Ultrasonic Device(S) for Maintenance of Weaving Accessories	2008	24 months	Instrument development	<ul style="list-style-type: none"> <li>• Single bath ultrasonic device for cleaning of weaving accessories developed</li> </ul>
18	Application of Supercritical Fluid (SCF) for Dyeing	2009	24 months	Process Development	<ul style="list-style-type: none"> <li>• Process for dyeing of polyester and cotton in supercritical carbondioxide developed.</li> <li>• Dissemination of research in reputed journals</li> <li>• Wet process industry interested in know-how of the technology</li> </ul>
19	Development of PET/ nanoclay nanocomposites for barrier packaging	2009	24 Months	Product Development	<ul style="list-style-type: none"> <li>• Nanocomposite for barrier packaging developed using PET / Nanoclay</li> </ul>

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
20	Dyeing of Polypropylene using Nanotechnology	2009	24 Months	Process Development	<ul style="list-style-type: none"> <li>• Process for dyeing of polypropylene (PP) using nanotechnology by incorporation of nanoclay inside the PP polymer matrix was developed.</li> <li>• Industries have shown interest in the exploring the possibilities of manufacturing modified Polypropylene granules in future.</li> </ul>
21	Evaluating compatibility & establishing methodology for simultaneous functional finishes for textile	2009	24 Months	Product development	<ul style="list-style-type: none"> <li>• Multi-functionality in textile substrates developed using antiviral followed by antibacterial followed by antifungal.</li> </ul>
22	Development of reflective Agrotextiles for Sun management	2009	24 Months	Product Development	<ul style="list-style-type: none"> <li>• The double layer Black and white fabric for ground covering was developed through weaving process.</li> <li>• The fabric has been tried for its advantage in ripening of tomatoes.</li> </ul>
23	Design of processing sequence suitable for embroidered fabrics incorporating embellishments	2009	24 Months	Process Development	<ul style="list-style-type: none"> <li>• Developed a standard sequence for processing of embroidered fabrics for incorporating embellishments</li> <li>• A guideline was designed for the processors to handle delicate materials.</li> </ul>
24	Standardisation of Norms for Agricultural Shade Net	2009	24 Months	Standardisation	<ul style="list-style-type: none"> <li>• New methods for measuring light shading percentage derived.</li> <li>• Ready reckoner prepared for appropriate usage of shade nets</li> </ul>
25	Commissioning and Installation of 2No's already developed Ultrasonic low energy dyeing technique	2009	12 Months	Commercialisation	<ul style="list-style-type: none"> <li>• SASMIRA developed ultrasonic dyeing system has been installed in process houses for commercial viability study.</li> </ul>
26	Commissioning and Installation of 2 No's already developed membrane separation system for textile Industry to reduce pollution by recycling water	2009	12 Months	Commercialisation	<ul style="list-style-type: none"> <li>• SASMIRA developed Membrane filtration system has been installed in two process houses for commercial viability study.</li> </ul>

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
27	Development of super absorbent polymer fibre mats for water management in horticulture applications	2010	24 Months	Product Development	<ul style="list-style-type: none"> <li>• Various nonwoven fibre mats suitable for ground covers using Superabsorbent Polymers developed.</li> <li>• Field trials were carried out using the SAP mats for potted palm plant at Plant Nursery in Navi Mumbai.</li> </ul>
28	Establishment correlation on UV stability of Technical Textiles under different exposure conditions	2010	24 Months	Standardization	<ul style="list-style-type: none"> <li>• Weathering test carried out on Technical textile.</li> <li>• A ready reckoner booklet has been brought out to know the sample degradation under different light sources.</li> </ul>
29	Development of electrically conductive PET/CNT nanocomposites film	2010	36 Months	Process Development	<ul style="list-style-type: none"> <li>• Three different varieties of PET/CNT Nanocomposites with 1%, 2% &amp; 3% of CNT wt % have been developed.</li> </ul>
30	Commercialisation of developed Table-Top Light Fastness Tester	2010	12 Months	Commercialization	<ul style="list-style-type: none"> <li>• Installed the developed Table-Top Light Fastness Tester in the test houses for commercialization study.</li> </ul>
31	Design and Development of a Device to Measure Electromagnetic Shielding Ability of Textiles	2012	24 Months	Instrument development	<ul style="list-style-type: none"> <li>• Instrument for measurement of the electromagnetic shielding ability of various textile substrates has been developed and tested in the range of 30MHz-3GHz.</li> </ul>
32	Design and Development of an Instrumental Set-up for measuring the Photoenergy Transmitting Capability of Horticultural shading nets	2012	24 Months	Instrument development	<ul style="list-style-type: none"> <li>• An indigenous instrumental set-up for measuring the photo energy transmitting capability (PAR) of shade nets for horticultural applications has been successfully developed.</li> </ul>
33	Development of Accelerated Tensile Creep Apparatus for Testing of Geotextiles	2012	24 Months	Instrument development	<ul style="list-style-type: none"> <li>• Thermal chamber was fabricated and the sample trials were conducted for accelerated creep test and validated with external testing agency.</li> <li>• Validation and co-relation of results with commercial laboratory undertaken and found successful.</li> </ul>

Sr.No	Name of the Project	Year of Sanction	Duration in years	Research subject area	Achievements
34	Development of Multilayered Bio-Mat to Combat Oil Spill Pollution	2012	24 Months	Product Development	<ul style="list-style-type: none"> <li>Multilayered bio-mat designed and developed by optimizing its various components viz. amount of bacterial consortium, lignite content and suitable textile substrate.</li> <li>Onsite trial conducted in the industry to assess the suitability/useability of the product</li> <li>Dissemination of research in reputed journals</li> </ul>
35	Development of UV fluorescent yarn for use in agrotexiles to detect counterfeits	2012	24 Months	Product Development	<ul style="list-style-type: none"> <li>UV Fluorescent yarn developed by compounding the polymer with suitable pigments. Samples of agro shade nets have been woven incorporating the developed yarn.</li> <li>These shade net structures were tested under UV fluorescent light to detect the counterfeit.</li> </ul>
36	Extraction of colourants from microorganisms having functional properties for textile applications	2012	24 Months	Process Development	<ul style="list-style-type: none"> <li>The violet, red and purple colour pigment was extracted from microorganism and successfully applied on the textile substrate.</li> <li>Dyeing methodology was optimized for the said microbial colours.</li> <li>The dyed samples were tested for their properties with respect to its suitability for textile industry.</li> </ul>
37	Development of prototype vessel for supercritical carbon dioxide (SC-CO <sub>2</sub> ) dyeing of textile fibers and to establish dyeing process	2013	24 Months	Process Development	<ul style="list-style-type: none"> <li>Project envisages development of prototype vessel for SC-CO<sub>2</sub> dyeing for textiles and to establish the dyeing process.</li> <li>Design of prototype SC-CO<sub>2</sub> textile dyeing set-up is finalized. Fabrication of prototype is in process.</li> </ul>
38	Design and development of a non-destructive test method for assessing the evenness and mixing quality of non-woven blends	2013	24 Months	Product Development	<ul style="list-style-type: none"> <li>Aim of project is to design a suitable system for evaluating evenness of fiber mixing in nonwoven batts based on fibre dielectric coefficients.</li> <li>The design of system for evaluating evenness of fibre mixing in nonwoven batts based on fibre dielectric coefficients is being planned with vendors.</li> </ul>

<b>Sr.No</b>	<b>Name of the Project</b>	<b>Year of Sanction</b>	<b>Duration in years</b>	<b>Research subject area</b>	<b>Achievements</b>
39	Development of Fruit bag Development of a system for converting nonwoven fabric into fruit bags & a mechanised technique for fruit bagging for horticultural application	2013	36 months	Product Development	<ul style="list-style-type: none"> <li>• Project aims to develop machinery set-up for converting nonwoven fabric into fruit bags of requisite size as per the target fruit.</li> <li>• A mechanism to assist the cultivator in mounting the fruit bag on to the developing fruits with ease would be developed.</li> <li>• The project also envisages mechanization of fruit bagging method.</li> </ul>
40	Development of Visible –Near Infra-red Camouflage Textile	2014	24 Months	Process Development	<ul style="list-style-type: none"> <li>• Currently Visible and NIR camouflage textiles are being developed by dyeing or printing of fabric with NIR absorbing dyes or pigments.</li> <li>• In this study carbon black polymer will be added in the dope of polyester polymer and modified fibre will be produced by melt spinning. These modified fibre will be dyed by disperse dye to develop visual NIR camouflage.</li> </ul>
41	Moisture managing Fruit & vegetable Bag	2014	24 months	Product Development	<ul style="list-style-type: none"> <li>• A large portion of all fresh produce is lost worldwide after harvest due to non-proper handling of produce post harvest.</li> <li>• The project envisages the use of suitable polymers that can be effectively tried for designing moisture management bags for storage of perishable items during transportation.</li> </ul>