Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 1. Introduction	**Revised Page No. 2**
Existing section "Agrotech" on the top left under "Different kinds of Technical Textiles" is to be replaced with following	

Different kinds of Technical Textiles

Agrotech

Agrotextiles are Special textiles that are manufactured for agricultural applications. These textile structures are used as controlling environment for plants/animals in applications like Agriculture, Horticulture, Animal husbandry, fisheries and forestry.

Examples of Agrotech technical textiles include shade-nets, mulch-mats, crop-covers, anti-hail nets and bird protection nets, fishing nets, pond lining, packing sacks and wrappers, cut grass collection bags, underlay fabrics, udder support nets, super Absorbent polymer mats, etc.

Agrotech consumption in India in 2012-2013 is valued at Rs. 742 crore amounting to a quantity of 33,390 MT. The fishing nets constitute over 90% of the Agrotech technical textiles.

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Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 2. Snapshot of COEs	**Revised Page No. 7**
Existing section "COE on Agrotech" is to be replaced with following	

COE on Agrotech

The Centre of Excellence for Agrotextiles has been assigned to The Synthetic and Art Silk Mills' Research Association (SASMIRA) as the lead agency jointly with other agencies viz., The Man-made Textiles Research Association (MANTRA), Surat and Navsari Agricultural University (NAU), Navsari.

The vision of the COE:

"To become a world class leading service driven national center for technical textile with international accreditation to serve the industry in general and agriculture sector in particular"

The mission of the COE:

- Creating awareness regarding agrotextiles products amongst agriculturists
- To assist the industry for entrepreneurship in the field of agrotextiles
- To provide training to the potential agrotextile manufacturers and users.
- To create state-of-the-art testing and certification facilities for agrotextile products
- To achieve self –reliance for the Centre of Excellence
- To develop and indigenise cost-effective agrotextile products
- To help the agricultural sector mainly to attain
    - Increased productivity by protection of crops
    - Early harvesting
    - Improved means of controlled irrigation
    - Conservation of natural resources

Under the Centre of Excellence, the following facilities have been created

- ❖ Demonstration Pilot Plant facilities
- ❖ Accredited Testing facilities
- ❖ Information center for Agrotextiles
- ❖ Training Center for Agrotextiles
- ❖ Prototype development
- ❖ Incubation center

The SASMIRA laboratory for Centre of Excellence Agrotextiles is accredited Nationally by National Accreditation Board for Testing and Calibration Laboratories (NABL, India) and Internationally by American Association of Laboratory Accreditation (A2LA, USA) in accordance with the international standard ISO/IEC 17025 – 2005 for Physical and Chemical and Biological evaluation of textiles. MANTRA has acquired NABL Accreditation as per ISO/IEC 17025 – 2005.

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The centre assists the manufacturer in development of standard agrotextile products and users in adopting the agrotextile products in the most scientific way. This is facilitated through specific training workshops, online training and demonstration at field. Also customized courses are made available to address the specific needs of the industry.

List of standards and specifications formulated at the Agrotech COE

1. Glossary of Agrotextiles – finalized and accepted by BIS. Under publication
2. Specification for 50 % shade nets for horticulture applications – Printed under IS 16008:2005
3. Specification for woven ground covers – Printed under IS 16008:2005
4. Specification for 75 % shade nets for horticulture applications – Printed under IS 16008:2005
5. Specification for 90 % shade nets for horticulture applications – Printed under IS 16008:2005

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 14**
Existing "Testing Instruments at the COE" under Infrastructure facilities are to be replaced with following	

Infrastructure and Facilities

Testing Instruments at the COE

The list of testing equipment added under the Centre of Excellence at SASMIRA, Mumbai is provided below:

Sr. No.	Equipment
1.	Water Permeability /permittivity – cross plane
2.	High pressure air-permeability tester
3.	Tension creep
4.	CBR puncture test with accessories
5.	Wind blocking percentage
6.	Lux Meter
7.	Thermal Oxidation Test (Oven test, -40^{0}C to100^{0}C)
8.	Thermal insulation tester – TIV
9.	Damage due to Flexing
10.	Laminar Air Flow
11.	Colony Counter
12.	Colorimeter
13.	Refrigerator
14.	Autoclave
15.	Centrifuge
16.	Incubator
17.	Vortex Mixer
18.	Shaking Incubator
19.	Magnetic Stirrer
20.	Differential Scanning Calorimeter & Thermal Gravimetric Analyser
21.	Torsion Balance
22.	pH Meter
23.	Analytical Balance

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24.	Water Bath Shaker
25.	Muffle Furnace
26.	Wascator
27.	Sublimation Fastness Tester
28.	Vertical Padding Mangle
29.	HTHP-GN Dyeing m/c
30.	Infra Color Dyeing m/c
31.	Lab Steamer
32.	Drying, Curing & Setting Chamber
33.	High speed stirrer
34.	Centrifuge
35.	Weatherometer
36.	High Performance Thin Layer Chromatography
37.	Atomic Absorption Spectroscopy
38.	Limiting oxygen tester
39.	Autoflammability tester
40.	High Performance Liquid Chromatography
41.	Scanning Electron Microscope

The list of testing equipments added under the Centre of Excellence at MANTRA, Surat is as follows:

Sr. No.	**Equipment**
1.	Vibrodyne
2.	Moist Heat Hydrolysis Tester
3.	Film Thickness Tester
4.	Shear Tester
5.	Forced Air Laboratory Oven
6.	Water Vapour Transmission Tester
7.	Cold Crack Tester
8.	Light Fastness Testing Instrument
9.	CBR puncture test
10.	Apparent opening size of geotextile
11.	Taber abrasion tester
12.	Rheometer
13.	Contact angle meter
14.	Portable spectrophotometer
15.	Photosynthetic apparatus

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16	Light scattering spectrophotometer
17	Gas Chromatography Mass Spectrophotometer

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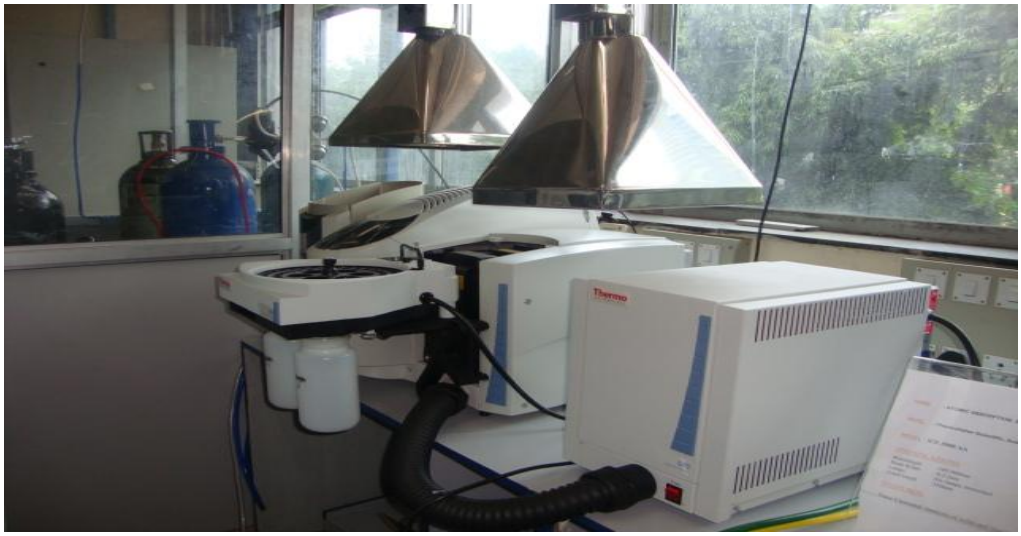
Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	Revised Page No. 15
Following images are to be included in existing section "Images of Testing Equipment at the COE"	

Images of Testing Equipment at the COE



Atomic Absorption Spectroscopy

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High Performance Liquid Chromatography

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High Performance Thin Layer Chromatography

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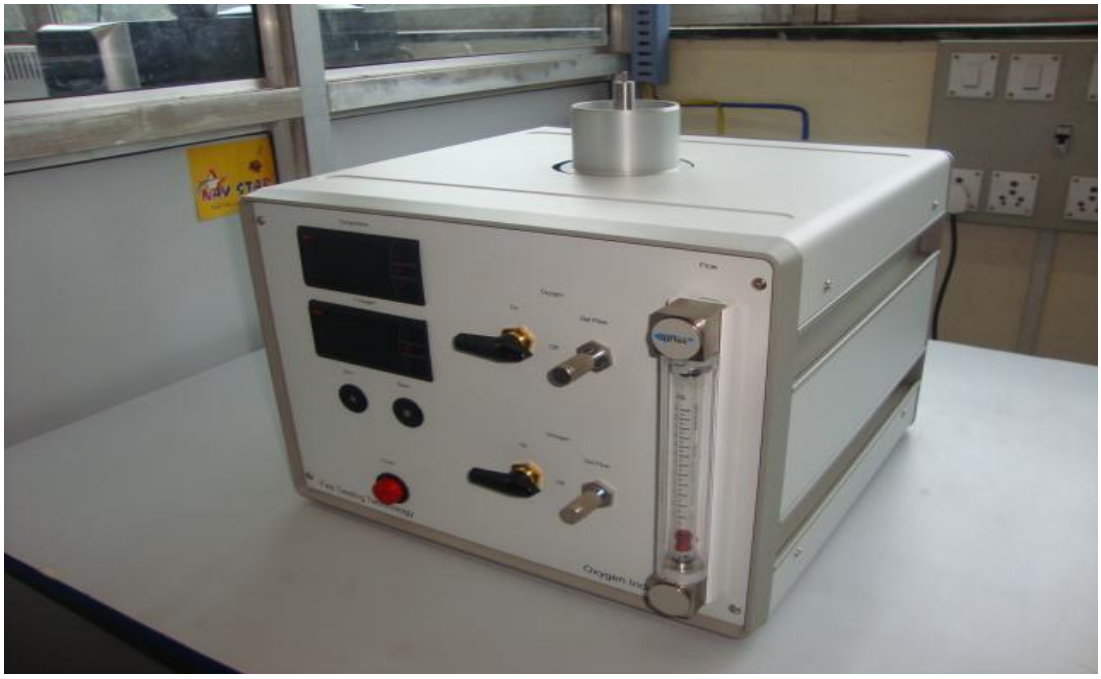

Limiting Oxygen Tester

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Scanning Electron Microscope

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Laboratory Drying, Condensation and Fixation Apparatus

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 15**
Existing "Test Parameters" is to be replaced with following	

Test Parameters

SASMIRA laboratory for Centre of Excellence Agrotextiles is accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) in accordance with the international standard ISO/IEC 17025 – 2005 for Physical, Chemical and Biological evaluation of textiles. Although, NABL accreditation has recognition by world laboratories, for domestic exporters American accreditation has been sought for the COE Agrotextiles. Hence, international accreditation has been attained from American Association for Laboratory Accreditation (A2LA), USA for Physical, Chemical and Microbiological testing of textiles and allied substrates.

Total Number of tests methods under National Accreditation: 119
Total Number of tests methods under International Accreditation: 127

MANTRA is in the process of acquiring NABL Accreditation under the guidance of the Textile Committee, Mumbai. Most of the preliminary work has been completed and they shall soon be sending in the application for NABL Accreditation.

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 16**
"Mechanical Scope under NABL Accreditation" is to be added in existing "Scope of Mechanical Test Parameters"	

Mechanical scope under NABL accreditation:

S. No.	Product(s) / Material of test	Specific tests performed	Test Method / Standard against which tests are performed	Range of testing/ Limits of detection	Uncertainty of Measurement (±)
1	Fibers	Staple Length for man made fibres	IS 10014 -1984 Part 1	10 mm to 300 mm.	0.16 mm at 39.8 mm.
2	Fibre	Linear density of single fibres	ASTM D 1577 - 07	0.27 D to 153 D	0.8 D at 1.672 D
3	Fibre	Tensile strength of single fibre	ASTM D 3822 - 07 ISO 5079 - 96	1 gms to 500 gms	± .01 gms at 7.86 gms
4	Yarn	Linear density of yarns	IS 1315-1977 IS 7703 - 1990 PART 1 ASTM D 1907 -07 ISO 2060 - 95	10D to 1000D	1.2 D at 201.7 D
5	Yarn	Crimp and Count of yarn removed from fabrics	IS 3442-1980 ASTM D 1059 -01 ISO 7211 – 84 - 5	0.1 Ne to 150 Ne 10 D to 3000 D Crimp % : 0.1% to 150%	± 1.5 Ne at 12.84 Ne
6	Yarn	Twist in yarn	IS 832-1985 ASTM D 1422 -99 ISO 7211 – 84 - 4 ASTM D 1423 -02	1 to 999 turns per inch	94 TPM at 781.6 TPM
7	Yarn	Single yarn- Breaking load and %elongation at break	IS 1670-1991 ASTM D 2256 - 08	1 N to 1 kN 1% to 800%	10 gms at 542.8 gms.
8	Yarns	Lea strength of yarns spun on cotton system (CSP)	IS 1671-1977	0.01 kN to 2 kN	319.2 CSP at 2427.4 CSP
9	Yarn	Unevenness of polyester and polyamide flat yarn	IS 7703-1987 PART 5	U % & CV % Upto 30 %	± 10 %

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10	Fabrics	Breaking load and % % elongation of woven textile fabrics	IS 1969-1985 ASTM D 5035 - 06 ISO 13934-99 -1	0.1 kN to 50 KN 1% to 200%	Warp:2.14 kg at 88.5 kg. Weft: 2kg at 52.3 kg.
11	Fabric	Air Permeability	ASTM D 737 - 04 ISO 9237 - 95	10 Pa to 2500 Pa	± 10 %
	Non wovens	Air permeability	ISO 9073 – 15 -07	10 Pa to 2500 Pa	± 10 %
12	Fabric /Technical Textile	Abrasion Resistance (Martindale)	ASTM D 4966 - 07 ISO 12947 – 98 – 1	Upto 9999 Cycles & Above	100 cycles at 40,000 cycles
13	Fabric /Technical Textile	Taber Abrasion Resistance	ASTM D 3884 - 07	Upto 9999 cycles & Above	± 0.5 for rating in change in shade
14	Fabric	Puncture Resistance Index CBR	 ASTM D 4833-88 ASTM D 6241 ISO 12236 - 06	 1 N to 10 kN .1 kN to 100 kN	5 N at 563 N
15	Fabric /Technical Textile	Apparent Opening Size	ASTM D 4751 - 95	75 µ to -850 µ	± 10 % at 200 microns
16	Fabric /Technical Textile	Thermal resistance	ASTM D 1518 - 03	1Tog to 12 Tog	0.0348 W/n.K at .031 W/n.K
17	Fabrics	Pilling resistance of fabrics	IS 10971-1984	1 -5 rating	1 /2 Grade rating
18	Fabrics	Length and width of woven fabrics	IS 1954-1990 ASTM D 3774 -04 ISO 22198 ASTM D 1907 ISO 2060 - 95	Complete range	.17 cms at 92.92 cms. for length 0.31 cms. at 112.1 cms for width
19	Fabric	Thickness of woven and knitted fabrics	IS 7702-1975, ASTM D 1777 - 07	0.01 – 10 mm. 0.001 mm to 4 mm.	28 µ at 193.2 µ
20	Fabric	Mass per unit length and mass per unit area in woven fabrics	IS 1964-2001, ASTM D 3776 -07 ISO 7211 – 84 - 6	Complete range	1.96 gms/ sq.metre at 206.96 gms/ sq.metre

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21	Fabric	Threads per unit length in woven fabrics	IS 1963-1981 ASTM D 3775 - 08 ISO 7211 – 84 – 2	1 to 2500/dm	0.8 EPI at 94.6EPI 0..5 PPI at 76.4 PPI
22	Fabric	Recovery from creasing of textile fabrics by measuring the angle of recovery	IS 4681-1981	20-160^0	2^0 at 279.4^0
23	Fabric	Stiffness (Bending Length)	ASTM D 1388 – 07 Option A	0.1 cm to 8 cm	0.4 mm. at 2.602 mm.
24	Fabric /Technical Textile	Breaking strength by Wide width method %Elongation	ASTM D 4595 - 94 ISO 10319 - 96	1 N to 150 kN 1% to 200%	Warp: 0.5 kN at 38.36 kN Weft: 0.2 kN at 37.1 kN
25	Fabric	Grab Strength %Elongation	ASTM D 5034 ISO 13934 - 99 – 2	1 N to 100 kN 0.1% to 200%	13 lbs at 293.6 lbs for warp 7 lbs at 233.98 lbs for weft
	Fabric /Technical Textile	Tensile strength (Grab Method) %Elongation	ASTM D 4632 – 91 ISO 13934-1999 Part-2	1 N to 100 kN 0.1% to 200%	Wp : 57.8 N at 753.6 N Wt : 31.1 n at 1092N
	Non wovens	Tensile strength (Grab Method) %Elongation	ISO 9073 – 18	1 N to 100 kN 0.1% to 200%	
26	Fabric	Tear strength (woven) (Nonwoven)	ASTM D 2261–07(a) ISO 13937 -2000– 2 ASTM D 5733 - 95	5 kN	3.27 lbs at 106.18 lbs for warp 4.68 lbs at 95.68 lbs for weft
27	Fabric /Technical Textile	Trapezoid tear strength	ASTM D 4533 - 91	5 kN	Warp: 14.8 N at 472.4 N Weft: 20.8 N at 440 N
28	Fabric	Failure in sewn	ASTM D 1683:2007	1000 N	3.5 N at

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		seams of woven fabrics			349.5 N for warp 2.0 N at 237.9 N for weft
	Fabric	Seam slippage and Seam strength	ISO 13936-1:2004 ISO 13935-2:1999	1000 N	± 10 %
29	Fabrics	Bursting strength and bursting distension of fabrics: diaphragm method	IS 1966-1975, ASTM D 3786 - 08 ISO 13938 - 99 – 2	1kPa to 7000 Kpa .01kg/cm^2 to 70 kg/cm^2	0.279 kgs/sq.cm at 35.06 kgs/sq.cm.

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 17**
"Chemical Scope under NABL Accreditation" is to be added in existing "Scope of Chemical Test Tests"	

Chemical Scope under NABL accreditation:

S No	Product / material of Test	Specific test performed	Test method specification against which tests are performed	Range of testing / limits of Operation / Limits of Detection	MU (±)
1.	Fibre/ Yarn /Fabric	Identification of textile fibers.	IS: 667 -1981 Reaff. 2003 AATCC – 20 : 2007	Qualitative	NA
2.	Fibre/ Yarn /Fabric	Percentage composition of binary mixture of protein fibre with certain other non-protein fibres (Method based on clean dry mass)	IS: 2006-1988 Reaff. 2004 (SASMIRA IHM-01 & IHM-03) AATCC – 20 A : 2008 ISO 1833 Parts 4:2006	3 – 100	± 1 % at 67 % polyester & 33 % wool
.3	Fibre/ Yarn /Fabric	Percentage composition of binary mixture of regenerated cellulose and cotton (Method based on clean dry mass)	IS: 1889-1979, Part IV, Sulphuric acid method Reaff. 2005 (SASMIRA IHM-01 AATCC – 20 A :2008	3 – 100	± 1% at 69% polyester & 31% regenerated cellulose
4	Fibre/ Yarn /Fabric	Percentage composition of binary mixture of nylon 6 or nylon 6,6 with other fibres (Method based on clean dry mass)	IS: 2005-1988 Reaff. 2008 (SASMIRA IHM-01 & IHM-03) AATCC – 20 A :2008 ISO 1833Parts 7: 2006	3 – 100	± 3
5	Fibre/ Yarn /Fabric	Percentage composition of binary	IS: 3416-Part 1, 2008(SASMIRA IHM-01 &	3 – 100	± 1.0 % at 67 %

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		mixture of polyester fibre with cotton and regenerated cellulose (Method based on clean dry mass)	IHM-03) AATCC – 20 A :2008 ISO 1833 Parts 11: 2006		polyester & 33% cotton
6	Fibre/ Yarn /Fabric	Determination of pH value of aqueous extract of textile materials	IS: 1390-1983 Reaff. 2004 AATCC 81:2006 ISO 3071:2005	1 to 14	± 0.5
7	Yarn /Fabric	Determination of colorfastness of textile materials to washing 1. Change in shade 2. Staining on adjacent fabric	AATCC 61:2007 -1A IS/ISO 105 C10 :2006	Rating 1 to 5 Rating 1 to 5	NA
8	Fibre/ Yarn /Fabric	Determination of colorfastness of textile materials to artificial light (xenon lamp) Rating on blue wool scale	IS: 2454-1985Reaff. 2006 AATCC -16: 2004 option 3 ISO : 105 BO2:2002	Rating 1 to 8 Class 1 to 8 Class 1 to 8	NA
9	Fibre/ Yarn /Fabric	Determination of colorfastness of textile materials to perspiration (Acidic & Alkaline) 1.Change in shade 2.Staining on adjacent fabric	IS: 971-1983 (Reaffirmed 2004) AATCC 15:2007 (acidic only) ISO 105-E04-2008	Rating 1 to 5 Rating 1 to 5	NA
10	Fibre/ Yarn /Fabric	Determination of colour fastness of textile materials to dry-heat (using Fix-o-test instrument) (Staining on adjacent fabric)	IS: 4636 - 1988 Reaff. 2004	Rating 1 to 5	NA
11	Fabric	Determination of water repellency of fabrics by cone test	IS: 7941-1976 Reaff.2004	1 to 400 ml i) amount of water penetrated water collected in	1 ml NA

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				ml 1 to 400 ml ii) amount of wetting of the outer surface visual observation using AATCC 22-2005 standard photograph as guidelines	
12	Fabric	Determination of water repellency of fabrics by water spray test	IS: 390-1975 Reaffirmed 2003 AATCC 22:2005	Rating 0 to 100	NA
13	Fabric	Determination of rubbing fastness of textile materials (Dry and Wet)	IS 766-1988 Reaff. 2004 AATCC 8:2007 ISO 105 X-12: 2001	Rating 1 to 5	NA
14	Fabric	Colorfastness to water	IS 767RA2004 AATCC 107 :2007 ISO 105 :E01:2010	Rating 1 to 5	NA
15	Fabric	Colorfastness to Sea water	IS 690 R.A2004 AATCC 106:2007 ISO 105 EO2;1996	Rating 1 to 5	NA
16	Fabric	Colorfastness to organic solvent	IS 688 - 1988 RA 2004 ISO 105 –X05 :1994	Rating 1 to 5	NA
17	Fabric	Dimensional changes on soaking in water	IS 2977- 1989 R.A 2005	0 to 20 %	± 0.5 at 2.5 % shrinkage
18	Fibre/ Yarn /Fabric	Moisture Content	ASTM D 2495:2007	Upto 20%	± 0.4 at 9 %
19	Fabric	Flammability	ASTM D 1230:1994 RA.2004	60 seconds	5 second
20	Fabric	Whiteness of Textiles	AATCC 110: 2005	Upto 200	± 3
21	Fabric	CMC Calculation of small color difference for acceptability	AATCC 173:2009	$\Delta E_{cmc} \leq 10$	± 5

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22	Yarn /Fabric	Identification of Class of Dyes on Textiles Material Cotton and other Cellulosic Fibers	IS 4472 –PART I :1967	Qualitative test	NA
23	Yarn /Fabric	Identification of Class of Dyes on Textiles Material Wool , Silk and other Protein Fibers	IS 4472 –PART 2 :1968	Qualitative test	NA
24	Yarn /Fabric	Identification of Class of Dyes on Textiles Material Man Made Fibers	IS 4472 –PART 3 :1973	Qualitative test	NA
25	Yarn /Fabric	Estimation of % Moisture on Finish , Ash and Fatty Matters on Grey and Finished Cotton Textiles Materials	IS 199:1989 R.A 2005	Up to 20 %	± 0.4 at 9 %
26	Yarn /Fabric	Color Fastness to Saliva	DIN – 53160-1:2010	Rating 1to 5	NA
27	Yarn /Fabric	Color Fastness to Rubbing with Organic Solvent	IS 3426:1986 RA 2004	Rating 1to 5	NA

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 17**
New section "Biological Scope under NABL accreditation" is to be created after section "Chemical Scope under NABL Accreditation"	

Biological Scope under NABL accreditation:

S No	Product / material of Test	Specific test performed	Test method specification against which tests are performed	Range of testing / limits of Operation / Limits of Detection	MU (±)
1	Fabric	Antibacterial Activity Assessment of Textile Materials: Parallel Streak Method	AATCC 147- 2004	Present/ Absent	-
2	Fabric	Antifungal Activity, Assessment of textile material : (Part 3)	AATCC 30 - 2004	Rating from 0 to 4	--
3	Fabric	Antibacterial Finishes on Textile Materials: Assessment of	AATCC 100 - 2004	0 to 100 %	Under process

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 19**
Existing list of machines under Incubation Center is to be replaced with following "List of Demonstration Machineries"	

Incubation Centre

List of Demonstration Machineries:

Sr. No.	Equipment
1.	Non woven needle punching machine
2.	Warp Knitting Machine
3.	Weaving Machine
4.	Laboratory Drying, Condensation and Fixation Apparatus
5.	Twin screw Extruder
6.	High Speed mixer
7.	Hydraulic Lab press
8.	Tape yarn manufacturing- Film slitting
9.	Blown film manufacturing
10.	Monofilament spinning
11.	Beaming machine for warp knitting

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 23**
Existing list of "Books" under Information Center is to be replaced with following list under information center	

Books

Sr. No.	Title of Books/Journals	Publisher	Author	Year of Publishing
1.	Properties & Performance of Natural Fibre	Woodhead Publishing,	K. Pickering	2008
2.	Fabric Testing	Woodhead Publishing,	J Hu	2008
3.	3-D Fibrous Assemblies	Woodhead Publishing,	J Hu	2008
4.	Structure & Mechanics of Textile Fibre Assembly	Woodhead Publishing,	P Schwartz	2011
5.	Indian Man Made Fibre Industry	CARE research		2010
6.	Coloration Technology (2009)	SDC		2009
7.	Monthly Periodical on Textile Featuring research in TT (2009)			2009
8.	Textile Research Journal (2009)	SAGE		2009
9.	ACTA Horticulture	ISHS		2011
10.	Floriculture	Media Today Pvt. Ltd.		2012
11.	Textile Month	World Textile Information Network		2011

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Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 26**
Existing "Technical Manpower" is to be replaced with Following	

Technical Manpower

Sr. No	Name	Field of Specialisation
SASMIRA, Mumbai		
1	Mr. U. K. Gangopadhyay	Textiles & Technical Textiles
2	Dr M R Mathur	Textile Polymers & Chemistry
3	Dr. K. Tandon	Marketing & Project
4	Mr. A. Oak	implementation
5	Mr. H. Soni	Marketing & Project
6	Mrs. A. S. Sudam	implementation
7	Mr. S. Saini	Marketing & Project
8	Mrs Manisha Hira	implementation
9	Dr R Ramakrishnan	Textile testing and technical textiles
10	Mr. R. P. Singh	Development of Textiles
11	Ms. S. N. Shinde	R & D in Technical textiles
12	Mr. P.R.Survase	Polymer Chemistry
13	Mr. P. R. Salunke	Fibre Science and Technical Textiles
14	Mr. M.Tiwari	Biotechnology
15	Ms P. Prajapathi	Textiles & Technical Textiles
16.	Mr. M.D.Walinjkar	Biotechnology
17	Mr. H.D.Shah	Fibre Science and Technical Textiles
18	Mr. A.S. Mann	Fibre Science and Technical Textiles
19	Ms Purnima Chauhan	Textile testing and technical textiles
20	Shri J S Sawant	Textile Chemistry
21	Shri A C Bhuta	Textile Fibre Science & chemistry
22	Shri V D Naik	Textile Chemistry
23	Ms A A Desai	Textile Chemistry & training
24	Shri A S Patil	Testing and evaluation
25	Shri H S Pandit	Testing and evaluation
26	Shri A R Talekar	Testing and evaluation
27	Shri N T Mistry	Testing and evaluation
28	Shri P G Kochrekar	Testing and evaluation
29	Shri D M Jani	Testing and evaluation
30	Ms A T Jhaveri	Testing and evaluation
31	Ms K A Hallur	Testing and evaluation
32	Ms L V Mhatre	Testing and evaluation
33	Shri R.K.Kulkarni	Testing and evaluation

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		Testing and evaluation Testing and evaluation Testing and evaluation
MANTRA, Surat		
1 2 3 4 5 6 7 8 9 10 11 12	Dr. S. K. Basu Dr. Hima D. Joshi M. G. Patel B. S. Pancholi M. G. Parikh A. M. Choksi A. D. Chauhan D. M. Prajapati S. R. Upadhyay D. V. Kantharia J. K. Patel K. N. Jadhav	Textiles & Technical Textiles Textile Chemistry Textile Chemistry Textiles Textile testing Textile chemistry Textile Testing Textile Testing Textile Testing Textile Testing Textile Testing Textile Testing
NAU, Navsari		
1 2 3 4	Dr. A. R. Pathak Dr. R. G. Patil Er. E. M. Solia Dr. S.G. Patil	Application of Agrotextile products and field application

Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 26**
Following name of manual is to be added as fifth point in existing "List of Manuals Prepared"	

List of Manuals Prepared

5. A ready reckoner for shade nets

Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 26**
Following "R&D Projects on Agrotech" are to be added as 11th & 12th point in existing "R&D Projects on Agrotech Undertaken/Under Progress" under SASMIRA	

R&D Projects on Agrotech Undertaken/Under Progress under SASMIRA

11) Development of UV fluorescent yarn for use in agrotextile to detect counterfeits
12) Design and development of an instrument set-up for measuring the photo energy transmitting capability of horticultural shading nets.

Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 28**
Following is to be added in existing "Agrotextile Seminars (SASMIRA)" as point no. 10 to 13 under the heading Awareness Program Conducted	

Agrotextile Seminars (SASMIRA)

10) 13th September 2011, Nashik, Workshop for farmers (2000 participants)
11) 19th September 2011, Dharwad, One day seminar on Protective agrotextiles **–** Advantages and Future prospects", (150 participants)
12) 16th December 2011, Seminar at Kisan 2011, Pune, (200 participants)
13) 22nd March 2012, Kolkatta, One day seminar on Protective agrotextiles**–** Advantages and Future prospects", (150 participants)

Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 28**
New section "Exhibition participation" is to be created after section "Awareness Programs Conducted"	

Exhibition participation:

1) 25th to 27th August 2011, Technotex 2011 at Bombay Exhibition Center, Goregaon.
2) 22nd to 29th September 2011, International Exhibition of Textile Machinery (ITMA) 2011 at Fira de Barcelona Gran Via, Barcelona, Spain.
3) 10th to 12th October 2011, Techtextil India 2011, at Bombay Exhibition Centre, Goregaon.
4) 14th to 18th December 2011, 'Kisan 2011' at International Exhibition Center, Pune-Nashik Highway, Moshi.
5) 20th to 22nd January 2012, Western States Regional Agriculture Fair fromat Vyara Dist. Tapi.

Annex - 1
COE on Agrotech
Lead : Synthetic and Art Silk Mills' Research Association (SASMIRA)

Updation Details as on Nov 2012	
Chapter No. & Name: 3. COE on Agrotech	**Revised Page No. 29**
Following list of prototypes developments is to be added as point no. 6 & 7 in existing section "A few of the envisaged prototype developments are" under the heading "Agrotech Prototype to be Developed"	

A few of the envisaged prototype developments are:

6) Reflective ground cover
7) Barrier packaging for agrochemicals