Bureau of Indian Standards

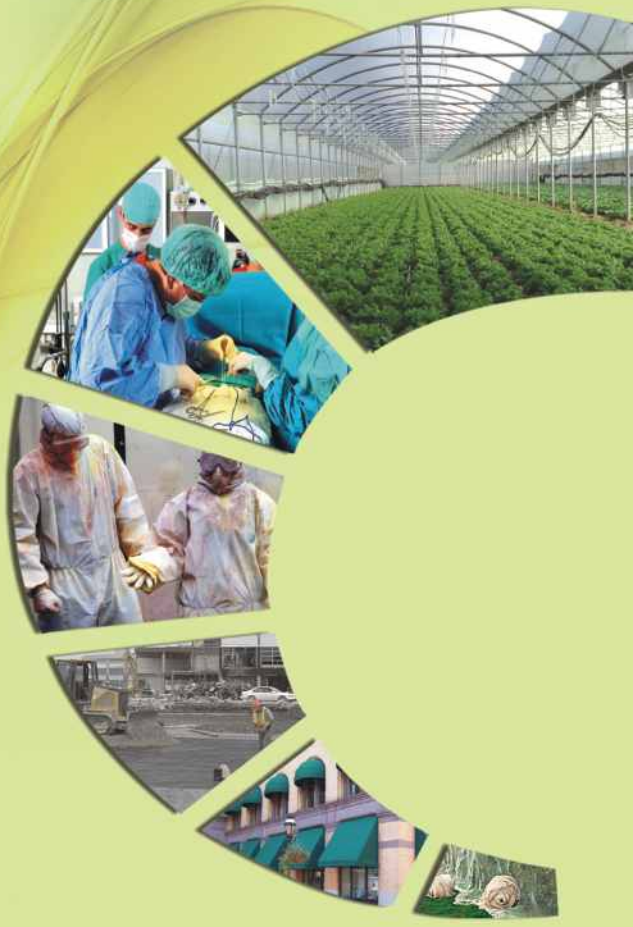
सत्यमेव जयते
Ministry of Textiles
Government of India

FICCI

Compendium on

Standards in Technical Textiles sector

February 2014



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1 EXECUTIVE SUMMARY

Technical Textiles are defined as textile materials and products used primarily for their technical performance and functional properties. Unlike conventional textiles where aesthetic value is one of the key usage considerations, Technical Textiles are used on account of their specific physical and functional properties. Technical Textiles are used individually as a stand-alone product, or as a component/part of another product to improve the performance of the product. Technical Textiles are also referred to as industrial textiles, functional textiles, performance textiles, engineering textiles, and hi-tech textiles.

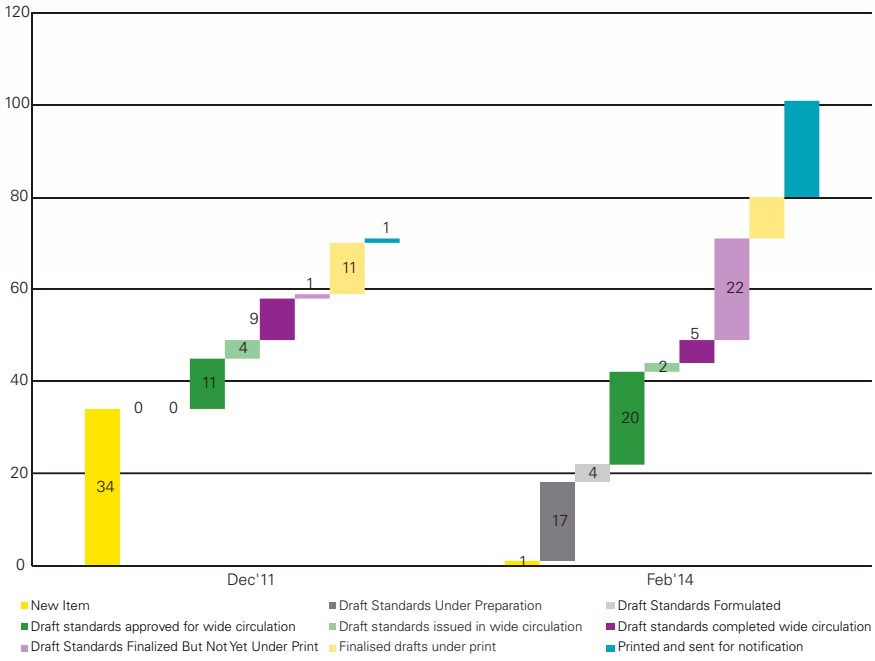
Technical Textiles represent a multi-disciplinary field with numerous end-use applications. Technical textiles fabrics have application in almost all major areas of economic activity: aerospace, shipping, sports, agriculture, defense, healthcare, construction, etc. Nonwovens are one of the key materials used for manufacturing Technical Textile products. Nonwoven fabrics are engineered fabrics that may be a limited life, single-use fabric or a very durable fabric. Nonwoven fabrics provide specific functions such as absorbency, liquid repellence, resilience, stretch, softness, strength, flame retardancy, washability, cushioning, filtering, microbial barrier, sterility, etc. These properties are often combined to create fabrics suited for specific jobs, while achieving a good balance between product use-life and cost. They can mimic the appearance, texture and strength of a woven fabric and can be as bulky as the thickest paddings. In combination with other materials they provide a spectrum of products with diverse properties, and are used alone or as components of apparel, home furnishings, health care, engineering, industrial and consumer goods.

Some of the technical textile products require mandatory prescriptions for their use. The Expert Committee on Technical Textiles (ECTT) constituted by the Ministry of Textiles has also recommended mandatory prescriptions for certain items. One of the major deterrents for the expansion of usage of many technical textiles products is absence of standards and regulatory legislation in India. In USA and Western European countries, legislation for mandatory use of such products has led to increase in demand.

There is a need for standardization for each product category and its segment which will have a positive impact on the consumption of Technical Textile products. Standards are the possible way towards ensuring regulatory use of Technical Textile products. If regulations pertaining to usage are introduced in Indian context the full market potential of technical textiles may be realized in an expedited manner, as on one hand it will create a steady market whereas on the other hand the manufacturing sector will be required to upgrade itself to the level of international standards.

Recent development in standards formulation for technical textile sector

A significant progress has been made in formulation and finalizing the standards from first Seminar on Standards held in FICCI at New Delhi on 30 November 2011. The progress made from last seminar with respect to standard formulation is shown below to represent the number of standards at each stage:



In total, there are now 101 standards which are currently submitted to BIS for formulation out of which 21 standards (4 standards clubbed into 1 standard) are printed and sent for notification and 9 draft standards are finalized and are under print stage. The status of submitted standards to BIS is as shown in adjacent figure:

The following are the details of the standards that have been printed and sent for notification by BIS from the last FICCI seminar:

Geo-textiles:

1. Jute Geo-Textiles - Part 1 Strengthening of Sub Grade in Roads and Control of Bank Erosion in Rivers and Waterways (First Revision of IS 14715): Standard No: IS 14715 (P-1): 2013

2. Jute Geo-Textiles - Part 2 Control of Bank Erosion in Rivers and Waterways (First Revision of IS 14715):Standard No: IS 14715 (P-2): 2013

Protective textiles

3. Standard no: IS 15758 (Part3): 2007: Protective clothing Part 3 Resistance of materials to penetration by liquids

Industrial textiles

4. Test method for non-wovens - Part 1 Determination of mass per unit area: Standard no: IS 15891 (Part 1) : 2011

5. Test method for non-wovens - Part 2 Determination of thickness: Standard no: IS 15891 (Part 2) : 2011

6. Test method for non-wovens - Part 3 Determination of tensile strength and elongation: Standard no: IS 15891 (Part 3) : 2011

7. Test method for non-wovens - Part 4 Determination of tear resistance: Standard no: IS 15891 (Part 4) : 2011

8. Test Methods for Nonwovens Part 6 Absorption: Standard no: IS 15891 (Part 6) : 2012

9. Textiles - Test Methods for Nonwovens Part 7 Determination of Bending Length: Standard no: IS 15891 (Part 7) : 2012

10. Textiles - Test Methods for Nonwovens Part 8 Determination of Liquid Strike - Through Time (Simulated Urine): Standard no: IS 15891 (Part 8) : 2012

11. Textiles-Test Methods for Non-wovens Part 9 Determination of Drapability including Coefficient: Standard no: IS 15891 (Part 9) : 2012

12. Textiles - Waterproof tarpaulins made from woven polyester fabric – Specifications: Standard no: IS 16126 : 2013

Agrotextiles

13. Jute Agro-Textile - Sapling Bags for Growth of Seedling /Sapling – Specification: Standard no: IS 16089:2013

14. Agro Textiles - Shade Nets for Agriculture and Horticulture Purposes – Specification: Standard no: IS 16008:2012

15. Textiles – Shade Nets 50% for Agriculture Application – Specification: Clubbed into one Standard no: IS 16008:2012

16. Textiles – Shade Nets 75% for Agriculture Application – Specification: Clubbed into one Standard no: IS 16008:2012

17. Textiles – 90% Shade Nets for Agriculture Application – Specification: Clubbed into one Standard no: IS 16008:2012

18. Textiles - Woven ground covers for horticulture application-Specification: Standard no: IS 16190:2014

19. Textiles- High Density Polyethylene (HDPE) laminated woven fabric lay flat tubes for irrigation purpose – Specification: Standard no: IS 16202:2014

20. Textiles- High density polyethylene (HDPE// polypropylene (PP) leno woven sacks for packaging and storage of fruits and vegetables: Standard no: IS 16187:2014

The concerned Textile Division Committee of BIS has dropped following standards:

1. Protex - Smoke generation Part 1 Guidance on optical density testing based on ISO 5659 - *Transferred to PCD department given the nature of requirements*

2. Protex - Smoke generation Part 2 Determination of optical density by a single chamber test based on ISO 5659 Part 2:1994 - *Transferred to PCD department given the nature of requirements*

3. Protex - Smoke generation Part 3 Determination of optical density by a dynamic flow method based on ISO/TR 5659 Part 3:1999 - *Transferred to PCD department given the nature of requirements*

4. Geotex - Evaluating Degradation of textiles to Accelerated UV exposure - *Standards already exist - IS 13162*

5. Geotex - Geosynthetics to be used in Railways - *The concerned committee has decided to drop this standard*

6. Agrotex - Evaluating Light transmission percentage and shading percentage of the nets - *Incorporated in shade net standards*

7. Agrotex - Fishing nets – Methods for the determination of mesh sizeStandards already exist in TXD18 - *Textile Materials for Marine / Finishing purposes - IS 15788: 2008 and 15789: 2008*

8. Medical Textiles - Standards for medical textiles – *Subject dropped in TX36 meeting*

9. Medical Textiles - method for determination of anti-bacterial activity – qualitatively- superseded by ISO 20743: 2007 Textiles - *Determination of antibacterial activity of antibacterial finished products*

10. Medical Textiles - method for determination of anti-bacterial activity – quantitatively - *superseded by ISO 20645: 2004 Textiles fabrics - Determination of antibacterial activity - Agar diffusing plate test*

11. Medical textiles - Perforated film absorbent dressings - *Concerned committee has decided to drop this standard*

12. Medical textiles - Cellulose wadding - *Concerned committee has decided to drop this standard*

13. Medical textiles -Vapour permeable water proof plastic wound dressings - *Subject dropped as there is very limited production of this product in India*

14. Agrotextiles -Vermicompost beds – *Standard already exist*

2 OVERVIEW

2.1 INTRODUCTION TO TECHNICAL TEXTILES

Technical Textiles are materials and products used primarily for their technical performance and functional properties. Technical Textiles represent a multi-disciplinary field with numerous end-use applications. Technical Textiles are used individually or as a component/part of another product to improve the performance of the product. Technical Textiles are also referred to as industrial textiles, functional textiles, performance textiles, engineering textiles, and hi-tech textiles.

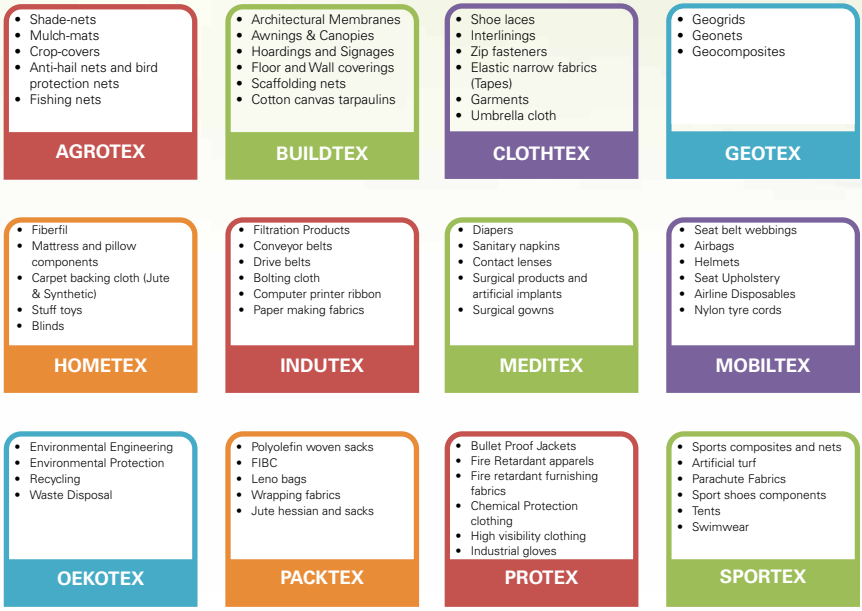
Technical Textile has become a major segment globally because of several advantages like functional requirement, health and safety, cost effectiveness, durability, high strength etc. The global Technical Textile has shown an increase in consumption from 25% (1998) to 37% (2010). The largest segments are Mobiltex, Indutex and Sportex and they contribute to about 55-57% of the total Technical Textiles on a global basis, presently.

While the global market size of the technical textiles sector was estimated to be INR 5.72 lakh crores in 2010, this sector is still in nascent stages in India. Based on past trends of growth and estimated end user segment growth, the Working Group on Technical Textiles for 12th Five Year Plan (FYP) projected the market size to reach INR 1.58 lakh crores by 2016-17 at a year-on-year growth rate of 20% during 12th FYP. Within Technical Textiles, segments of Packtex, Clothtex and Hometex capture two-thirds of the market, while share of Oekotex, Geotex and Agrotex is almost negligible.

India is yet to find a significant place in global Technical Textile market. Although slow, but a perceptible sign of growth has been observed in a few specialized fields in Indian Technical Textile consumption and contribution. Consumption of certain medical and health care textiles is growing in the country. With emerging trends, it is expected that the consumption of Technical Textiles in India will far outpace that in other developed countries. However, a lot needs to be done on various fronts in India to attain this growth level.

Classification

Technical Textiles represent a multi-disciplinary field with numerous end-use applications. This industry has penetrated major areas of economic activity: aerospace, shipping, sports, agriculture, defense, healthcare, construction, etc. Depending on the product characteristics, functional requirements and end-user applications, the highly diversified range of Technical Textile products have been classified into following 12 categories.

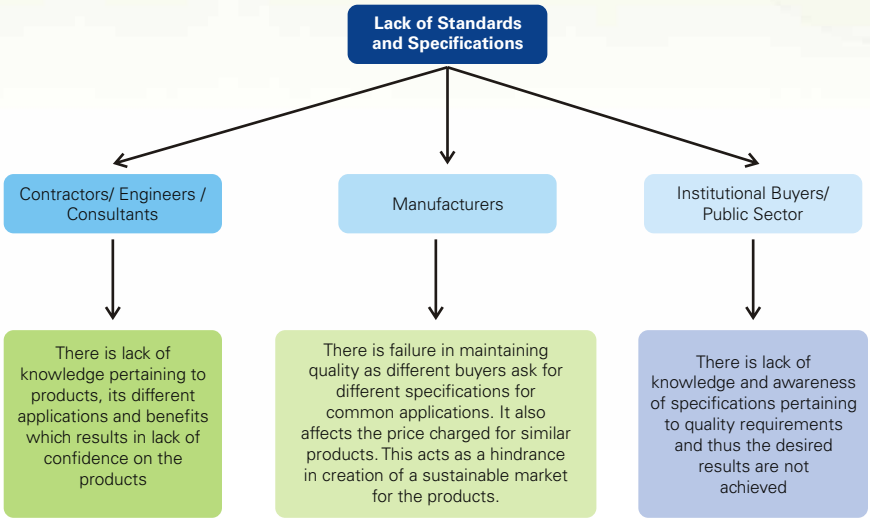


2.2 NECESSITY OF STANDARDS

One of the major deterrents for expansion of technical textile market in India is the absence of standards and regulatory legislation. Standards, as a driving factor in the Technical Textile business, are the framework for any manufacturer of Technical textile products. There is a need for standardization for each product category and its segment which will have a positive impact on the consumption of Technical Textile product in India. Standards are the possible way towards ensuring regulatory use of Technical Textile products.

Without having standards in place the regulatory framework cannot be developed or implemented to the fullest. The standards become more critical from the aspect that several technical textile products have crucial application in infrastructure, life saving applications, personal protection, etc.

The lack of standards in any particular technical textile segment affects not only manufacturers but also consumers and the government. The lack of standards creates disparity in the quality of products available which results in the usage of subpar product performance. As quality products are not utilized, the export ability of the industry is compromised resulting in lower foreign exchange earnings for the government.



Standards are the first step towards ensuring regulatory use of technical textile products. For instance, in **Geotex**, as a general practice worldwide, the works/contracts awarded by the respective authorities mandate the use of geotextile for the work wherein the kind, standard and the amount of the geotextile to be used for the particular work are also specified. In Europe, CE marking has been made mandatory for the geotextile products to be supplied for public works. These requirements have been introduced to standardize test methods throughout Europe and provide a consistent framework for the specification of geotextiles based on their application.

Various foreign governments have incorporated geotechnical textile products into their infrastructure development guidelines. The use of Geomembranes in landfills have been mandated in many European nations, the US, South Africa and Japan. In the US, the government has also developed guidelines to manage storm-water discharges from construction activities including highway construction. Furthermore, certain states in the US have recommended the use of silt fences to control erosion during road construction. The World Bank has made the use of Geosynthetics mandatory for all infrastructure projects that it is funding. China is encouraging the application and development of Geosynthetics through 50 hydraulic projects using Geosynthetics as model projects.

Similarly, in **Protex** segment there are regulations mandating the use of personal protective clothing /equipment in most of the developed countries. However, each of the mandated product/component is also specified as per certain standards. Like in USA, the federal regulations mandate the use of personal protective equipment (PPE) under —Occupational Health and Safety Act (OHSA) wherein an employer is obliged to provide for its employee safety by means of using standardized personal protective equipment. Similar acts and rules exist elsewhere in developed countries of EU, Australia, South Africa, etc. which mandates the use of Technical Textiles, as depicted below.

US	Europe
In U.S, federal regulations mandate the use of personal protective equipments (PPE) under — Occupational Health and Safety Act (OHSA). The highlights of the OHSA regulations related with PPEs are as follows: • The act obliges an employer to eliminate any reasonably foreseeable risk to the health and safety of any person at the place of work. If it is not reasonably practicable to eliminate the risk, the	In Europe, the Personal Protective Equipment at Work Regulations Act governs and mandates the use of PPEs at the workplace. The regulations are somewhat similar to those in OHSA. Following points summarizes the Act: • The regulations mandate the employers to provide free of charge PPEs to his employees who may be exposed to a risk to their health or safety while at work except where and to the extent that such risk has

US	Europe
employer is mandated to control the risk and the usage of PPE is advised and recommended for the same. • The Act mandates the employer to provide and ensure the use of protective equipment at the place of work wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. The act also mandates the equipment to be maintained in a sanitary and reliable condition. • In case the employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment. • The Regulation also mandates the use of particular types of PPE in certain circumstances as a means of control. This include use of harnesses in elevated work platforms and use of specific types of PPE in asbestos removal processes.	been adequately controlled by other means which are equally or more effective. • The regulation also mandates the use of PPEs by self-employed persons. • The law also mandates the employer to take into account the seriousness and frequency of the risk when deciding on the frequency of use of PPE. • The law also states the requirements for compatibility, assessment, maintenance, and accommodation etc. of the PPEs. • The regulation applies to and mandates the usage of PPEs like safety helmets, gloves, eye protection and high-visibility clothing, Safety footwear, chemical protective clothing, thermal protection clothing etc.

South Africa	Australia
The South African Department of Health has a protective clothing policy for radiation control. The policy regulates the use of protective clothing at the places having radiological emission. The policy mandates the use of:- • Protective aprons (workers) • Protective gloves (workers) • Thyroid shields for patients and radiation workers • Gonad shields for patients	In Australia, "Motorcycling Australia", the governing body of motorcycle sport, encourages and recommends the use of PPEs for all motorcycle activities. But, the body does not support the mandatory imposition of the use of protective clothing. The body also supports enforcement and registration authorities which act to encourage the use of protective equipment by motorcyclists. The body has taken a number of initiatives for the same, including the following: • The body supports the removal of GST and all other taxes on CE Standards approved protective clothing with a belief that this will reduce the price of protective clothing. • It supports the adoption of the CE standards for impact protection, back protectors, protective clothing, protective footwear and stone and debris shields by all manufacturers. • It supports the prosecution of any person or organisation importing or selling protective clothing which purports to meet any Standard but does not. • The institute also supports the prosecution of any person or organisation importing, manufacturing or selling labels which are intended to mislead as to compliance of any protective equipment with a Standard.

Globally, product specifications for various Agrotex products have not been standardized. However, Test methods have been well developed as its applications are wider. An agrotextile research project conducted by Central Institute of Post-Harvest Engineering & Technology (CIPHETI). One of the objectives of the project was standardization of specific mess size of net to prevent entry of tiny insect pests. Net houses of different sizes were evaluated. At the end of the project, the project team observed that the shade net of a particular size helped increase the yield of two different vegetables by more than 50%.

The establishment of standards for key technical textile products will provide Indian authorities a foothold to start moving towards a regime of mandatory usage regulation where necessary. The user industry which is largely dependent on imports for such products will also be able to ensure the quality of products which are manufactured as per the standards. Establishing product specifications and standards will lead to increased consumer empowerment, enhanced product performance and create a level playing field for technical textile manufacturers. This will create a pull for technical textile products and lead to the overall development of the sector.

3 EXISTING STANDARDS

PROTEX

S. No	BIS Standard	Description
1.	IS 11871:1986	Methods for determination of flammability and flame resistance of textile fabrics
2.	IS 12467(Part 1):2005	Textiles - Assessment of the ignitability of upholstered furniture - Part 1 - Ignition source smouldering cigarette (Superseding IS 12467)
3.	IS 12467(Part 2):2005	Textiles - Assessment of the ignitability of upholstered furniture - Part 2 - Ignition source: match-flame equivalent
4.	IS 13501:1992	Textiles - Determination of flammability by oxygen index
5.	IS 15589:2005 / ISO 6940:2004	Textiles fabrics - Burning behaviour– Determination of ease of ignition of vertically oriented specimens
6.	IS 15590:2005 / ISO 6941:2003	Textile fabrics - Burning behaviour - Measurement of flame spread properties of vertically oriented specimens
7.	IS 15612(Part 1):2005	Textiles - Burning behaviour of curtains and drapes - Part 1 - Classification scheme
8.	IS 15612(Part 2):2005	Textiles - Burning behaviour of curtains and drapes - Part 2 - Measurement of flame spread of vertically oriented specimens with large ignition source
9.	IS 15612(Part 3):2005	Textiles - Burning behaviour of curtains and drapes - Part 3 - Method for determining the ignitability of vertically oriented specimens(small flame)

S. No	BIS Standard	Description
10.	IS 15612(Part 4):2005	Textiles - Burning behaviour of curtains and drapes - Part 4 - Method of determining the flame spread of vertically oriented specimens
11.	IS 15727(Part 1):2007 / ISO 12952-1 : 1998	Textiles - Burning behaviour of bedding items - Part 1: General test methods for the ignitability by smouldering cigarette
12.	IS 15727(Part 2):2007 / ISO 12952-2 : 1998	Textiles - Burning behaviour of bedding items - Part 2 - Specific test methods for the ignitability by a smouldering cigarette
13.	IS 15727(Part 3):2007 / ISO 12952-3 : 1998	Textiles - Burning behaviour of bedding items - Part 3 : General test methods for the ignitability by a small open flame
14.	IS 15727(Part 4):2007 / ISO 12952-4: 1998	Textiles - Burning behaviour of bedding items - Part 4: Specific test methods for the ignitability by a small open flame
15.	IS 15741:2007*	Textiles - Resistance to ignition of curtains and drapes - Specification (Based on EN)
16.	IS 15742:2007*	Textiles - Requirements for clothing made of limited flame spread materials and material assemblies affording protection against heat and flame - Specification(Based on EN)
17.	IS 15748:2007*	Textiles - Protective clothing for industrial workers exposed to heat (excluding firefighters' and welders' clothing)
18.	IS 15758(Part 3):2007	Textiles - Protective clothing Part 3 Resistance of materials to penetration by liquids
19.	IS 15758(Part 1):2007 / ISO 9151 : 1995	Textiles - Protective clothing Part 1 Method of determining of heat transmission on exposure to flame
20.	IS 15758(Part 2):2007 / ISO 6942 : 2002	Textiles - Protective clothing Part 2 Assessment of material assemblies when exposed to source of radiant heat
21.	IS 15758(Part 4):2007 / ISO 15025 : 2000	Textiles - Protective clothing Part 4 Test method for limited flame spread

S. No	BIS Standard	Description
22.	IS 15758(Part 5):2007 / ISO 9185 : 1990	Textiles - Protective clothing - Part 5 Assessment of resistance of materials to molten metal splash
23.	IS 15764:2008	Textiles - Determination of the burning behaviour of textile floor coverings
24.	IS 15768:2007*	Textiles - Resistance of ignition of upholstered composite used for non-domestic furniture (Based on EN)
25.	IS 15781:2007	Textiles-Method for determination of flammability of blankets
26.	IS 15782:2007	Textiles - Method for determining deterioration of visibility due to smoke released on combustion of materials

** Standard under amendments*

GEOTEX

S. No	BIS Standard	Description
1.	IS 13162 (Part 2):1991	Geotextiles - Methods of test Part 2 Determination of resistance to exposure of ultra-violet light and water (Xenon arc type apparatus)
2.	IS 13162 (Part 3):1992	Geotextiles - Methods of test Part 3 Determination of thickness at specified pressure
3.	IS 13162 (Part 4):1992	Geotextiles - Methods of test Part 4 Determination of puncture resistance by falling cone method
4.	IS 13162 (Part 5):1992	Geotextiles - Methods of test Part 5 Determination of tensile properties using a wide width strip
5.	IS 13321(Part 1):1992	Glossary of terms for geosynthetic Part 1 Terms used in materials and properties

S. No	BIS Standard	Description
6.	IS 13325:1992	Method of tests for determination of tensile properties of extruded polymer geo-grids using the
7.	IS 13326(Part 1):1992	Method of test for evaluation of interface friction between geo-synthetic and soil Part 1 Modified direct shear technique
8.	IS 14293:1995	Geotextiles - Method of test for trapezoid tearing strength
9.	IS 14294:1995	Geotextiles - Method for determination of apparent opening size by dry sieving technique
10.	IS 14324:1995	Geotextiles - Methods of test for determination of water permeability-permittivity
11.	IS 14706:1999	Geotextiles - Sampling and preparation of test specimen
12.	IS 14714:1999	Geotextiles-Determination of abrasion resistance
13.	IS 14715:2000 (Standards to be revised)	Woven jute geotextiles – Specification
14.	IS 14715 (Part 1):2013	Jute Geo-Textiles - Part 1 Strengthening of subgrade in roads-Specification (First revision of IS14715:2000)
15.	IS 14716:1999 /ISO9864:1990	Geotextiles- Determination of mass per unit area
16.	IS 14739:1999	Geotextiles - Methods for determination of creep
17.	IS 14986:2001	Jute geo-grid for rain water erosion control in road and railway embankments and hill slopes
18.	IS 15060:2001 /ISO 10321:1992	Geotextiles -Tensile test for joints/seams by wide width method
19.	IS 15868(Part 1):2008	Natural Fibre Geotextiles (Jute Geotextiles and Coir Bhoovastra) Methods of Test - Part 1 Determination of Mass Per Unit Area

S. No	BIS Standard	Description
20.	IS 15868(Part 2):2008	Natural Fibre Geotextiles (Jute Geotextiles and Coir Bhoovastra) Methods of Test - Part 2 Determination of Thickness
21.	IS 15868(Part 3):2008	Natural Fibre Geotextiles (Jute Geotextiles and Coir Bhoovastra) Methods of Test - Part 3 Determination of Percentage of Swell
22.	IS 15868(Part 4):2008	Natural Fibre Geotextiles (Jute Geotextiles and Coir Bhoovastra) Methods of Test - Part 4 Determination of Water Absorption Capacity
23.	IS 15868(Part 5):2008	Natural Fibre Geotextiles (Jute Geotextile And Coir Bhoovastra) - Methods of Test - Part 5 Determination of Smoldering Resistance
24.	IS 15868(Part 6):2008	Natural Fibre Geotextiles (Jute Geotextiles and Coir Bhoovastra) Methods of Test - Part 6 Determination of Mesh Size of Coir Geotextiles by Overhead Projector Method
25.	IS 15869:2008	Textiles-open weave coir bhoovastra-specification
26.	IS 15871:2009	Use of coir geotextiles (coir bhoovastra) in unpaved roads
27.	IS 15909:2010	PVC Geo membranes for lining specification
28.	IS 15910:2010	Geo-Synthetics For Highways - Specification
29.	IS 16090:2013	Geo-Synthetics - Geo-textiles used as protection (or Cushioning) materials - Specification

AGROTEX

S. No	BIS Standard	Description
1.	IS 15351:2008	Textiles- Laminated high density polyethylene (HDPE) woven fabric (Geo-membrane) for water proof lining (First revision)
2.	IS 15907:2010*	Agro textiles - High Density Polyethylene (HDPE) Woven Beds for Vermiculture - Specification

S. No	BIS Standard	Description
3.	IS 4401:2006	Textiles-Twisted nylon fishnet twines (fifth revision)
4.	IS 4402:2005 /ISO 1107:2003	Textiles - Fishing nets - Netting - Basic terms and definitions (second revision)
5.	IS 4640:1993 /ISO 858:1973	Fishing nets - Designation of netting yarns in the tex system (first revision)
6.	IS 4641:2005 /ISO 1530:2003	Textiles - Fishing nets - Description and designation of knotted netting (second revision)
7.	IS 5815(Part 4):1993 /ISO 1805:1973	Fishing nets: Determination of breaking load and knot breaking load of netting yarns (first revision)
8.	IS 5815(Part 5):2005 /ISO 1806:2002	Textiles - Fishing nets - Determination of mesh breaking force of netting (second revision)
9.	IS 5815(Part 6):1993 / ISO 3090:1974	Netting yarns - Determination of change in length after immersion in water (first revision)
10.	IS 5815(Part 7):1993 / ISO 3790:1976	Fishing nets - Determination of elongation of netting yarns (first revision)
11.	IS 6348:1971	Basic terms for hanging of netting
12.	IS 6920:1993 /ISO 1532:1973	Fishing nets - Cutting knotted netting to shape ('Tapering')
13.	IS 8746:1993 /ISO 3660:1976	Fishing nets - Mounting and joining of netting - Terms and illustrations (first revision)
14.	IS 9945:1999	Fishing nets - Method for determination of taper ratio and cutting rate (first revision)
15.	IS 15788:2008	Fishing nets - Method of test for determination of mesh size - Opening of mesh
16.	IS 15789:2008	Fishing nets - Method of test for determination of mesh size - Length of mesh
17.	IS 5508 (Parts 1 to 24)	Guides for fishing gears
18.	IS 7533:2003	Polyamide monofilament line for fishing
19.	IS 14287:1995	PP Multifilament netting twine

S. No	BIS Standard	Description
20.	IS 6347:2003	PE Monofilament twine for fishing
21.	IS 16008:2012*	Agro Textiles - Shade Nets for Agriculture and Horticulture Purposes – Specification *(Clubbed the specifications of 3 Shade net standards, i.e. Specifications for Shade net 50%, 75% and 90% for Agriculture Application. Thus, have 1 standard against 4 proposed standards)*
22.	IS 16089:2013	Jute Agro-Textile - Sapling Bags for Growth of Seedling /Sapling – Specification
23.	IS 16202:2014	Textiles- High Density Polyethylene (HDPE) laminated woven fabric lay flat tubes for irrigation purpose – Specification
24.	IS 16190:2014	Textiles - Woven ground covers for horticulture application-Specification
25.	IS 16187:2014	Textiles- High density polyethylene (HDPE// polypropylene (PP) leno woven sacks for packaging and storage of fruits and vegetables

** Standard under amendments*

MEDITEX

S. No	BIS Standard	Description
1.	IS 674:1987	Specification for flannel, hospital, grey (third revision)
2.	IS 757:1971	Specification for handloom cotton lint, absorbent, bleached (first revision)
3.	IS 758:1988	Specification for handloom cotton gauze, absorbent, non-sterilized (fourth revision)
4.	IS 863:1988	Specification for handloom cotton bandage cloth, non-sterilized (second revision)
5.	IS 1097:1979	Handloom cotton mosquito netting (first revision)
6.	IS 1143:1973	Cotton mosquito netting, square mesh (first revision)

S. No	BIS Standard	Description
7.	IS 1431:1973	Specification for cotton mosquito netting, round mesh (first revision)
8.	IS 1681:1998	Textiles - Hospital blankets, woollen, dyed - Specification (third revision)
9.	IS 6237:1971	Specification for handloom cotton cloth for plaster of paris bandages and cut bandages
10.	IS 9886:1990	Mosquito net – Specification (first revision)
11.	IS 10054:1996	Textiles - High density polyethylene (HDPE) monofilament mosputo netting, round mesh - Specification (first revision)
12.	IS 11046:1984	Towel, operating
13.	IS 12839:1989	Wool/polyamide blended flannel, hospital grey - Specification
14.	IS 14953:2006	Textiles – Polyester or nylon mosquito nets – Specification (first revision)

SPORTEX

S. No	BIS Standard	Description
1.	IS 2150: 1989	Fabrics for Men's and Boys' Woven Dress-Suit, Sportswear, Jacket, Slack and Trouser - Specification
2.	IS 6590:1972	Specification for braided nylon ropes for mountaineering purposes
3.	IS 4375:1975	Cotton knitted sports shirts
4.	IS 14358:1996	Textiles - Nylon laces for shoes and boots – Specification
5.	IS 2965:1987	Breaking cord for cotton parachutes (first revision)
6.	IS 2970:1987	Cotton fabrics for supply-dropping parachutes (first revision)

S. No	BIS Standard	Description
7.	IS 3449:1984	Cotton webbing for parachutes (second revision)
8.	IS 4726:1984	Light-weight nylon fabric for personnel parachutes (first revision)
9.	IS 14564:1998	Textiles - Cotton tapes for personnel parachutes – Specification
10.	IS 8991:1978	Specification for nylon fabrics for sleeping bags
11.	IS 14445: 1997	Textiles - Fabrics for awnings and camping tents - Specification.
12.	IS 14351:1996	Textiles-Ground sheets (Light weight)-Specification
13.	IS 3345:1989	Sports nets (first revision)
14.	IS 3800:1983	Batting gloves (first revision)
15.	IS 3874:1987	Boxing gloves (first revision)
16.	IS 8404(Part 2):1979	Fixed playground equipment for schools: Part II - Climbing ropes

INDUTEX

S. No	BIS Standard	Description
1.	IS 1178:1986	Cotton Filter Cloth
2.	IS 1422:1983	Specification For Cotton Duck
3.	IS 1424:1983	Specification For Cotton Canvas
4.	IS 1719:2000	Industrial Textile-Pressed Wool Felt
5.	IS 4388:1982	Specification For Cotton Fabrics For Reinforcement Of Rubber Hoses
6.	IS 4399:1967	Specification for nylon fabrics for industrial and special purposes
7.	IS 5996:1984	Specification For Cotton Belting Ducks
8.	IS 7133:1985	Specification for cotton tyre cord and warp sheet for cycle and rickshaw (first revision)

S. No	BIS Standard	Description
9.	IS 7610(Part 1):1975	Specification for machinery fabrics, wool - Part-1 General
10.	IS 7610(Part 2):1975	Specification for machinery fabrics, wool -Part 2 Clearer cloth (superseding IS 6054:1970)
11.	IS 7610(Part 3):1975	Specification for machinery fabrics, wool - Part 3 Sizing flannel (superseding IS 6055:1970)
12.	IS 7610(Part 4):1982	Specification for machinery fabrics, wool - Part 4 Plaiding cloth (first revision)
13.	IS 7610(Part 5):1976	Specification for machinery fabrics, wool - Part 5 Lapping cloth
14.	IS 8430:1977	Nylon fabrics for inflatable equipment
15.	IS 8991:1978	Specification for nylon fabrics for sleeping bags
16.	IS 8995:1979	Specification for cotton cover fabrics for fan belts and V-belts
17.	IS 9230:1979	Specification for cotton chafer fabrics
18.	IS 9293:1991	Textiles - Canvas, Flax - Specification
19.	IS 9998:1981	Specification for cotton liner fabrics
20.	IS 10055:1982	Specification for Jute needle loom felts
21.	IS 11573:1986	Specification for polyamide yarn for cycle and rickshaw tyres
22.	IS 11574:1986	Specification For Polyamide Filter Cloth
23.	IS 11575:1986	Specification For Polyester Filter Cloth
24.	IS 11915:1986	Specification For Nylon Fabric For Making Mountaineering Equipment
25.	IS 11926:1987	Specification for polyamide tyre cord warp sheet for automotive tyres
26.	IS 11986:2003	Industrial Textiles - Cotton Backing Cloth For Abrasives
27.	IS 12020(Part 1):1987	Polypropylene Filter Cloth: Part I - Filter Cloth From Spun-Polypropylene Yarn

S. No	BIS Standard	Description
28.	IS 12384:1988	Specification For Rayon Duck For Industrial Use
29.	IS 12415:1988	Specification For Polyamide Duck For Industrial Use
30.	IS 12416:1988	Specification For Polyester/Cotton Belting Ducks
31.	IS 12806:1989	Non-woven fusible interlinings – Specification
32.	IS 12809:1989	Non-woven sew-in interlinings – Specification
33.	IS 13128(Part 1):1991	Textiles - Fabric, woven glass fibre, for electrical insulation and plastic laminate - Specification Part 1 Loomstate fabrics
34.	IS 13128(Part 2):1991	Textiles - Fabric, woven glass fibre, for electrical insulation and plastic laminate - Specification Part2 Desized and finished fabrics
35.	IS 13137:2003	Textiles - Tyre cord warp sheet, polyamide, dipped - Specification (first revision)
36.	IS 13510:2000	Duck, Polyester/Cotton Blended, Rip Stop
37.	IS 14445:1997	Textiles - Fabrics for awnings and camping tents - Specification
38.	IS 15595:2005	Industrial Textiles - Bonded Fabrics For Air Filtration
39.	IS 15891 (Part 1) : 2011	Test method for non-wovens - Part 1 Determination of mass per unit area
40.	IS 15891 (Part 2) : 2011	Test method for non-wovens - Part 2 Determination of thickness
41.	IS 15891 (Part 3) : 2011	Test method for non-wovens - Part 3 Determination of tensile strength and elongation
42.	IS 15891 (Part 4) : 2011	Test method for non-wovens - Part 4 Determination of tear resistance
43.	IS 15891 (Part 6) : 2012	Test Methods for Nonwovens Part 6 Absorption
44.	IS 15891 (Part 7) : 2012	Textiles - Test Methods for Nonwovens Part 7 Determination of Bending Length

S. No	BIS Standard	Description
45.	IS 15891 (Part 8): 2012	Textiles - Test Methods for Nonwovens Part 8 Determination of Liquid Strike - Through Time (Simulated Urine)
46.	IS 15891 (Part 9): 2012	Textiles-Test Methods for Non-wovens Part 9 Determination of Drapability including Coefficient
47.	IS 16126 : 2013	Textiles - Waterproof tarpaulins made from woven polyester fabric – Specifications

COMPOSITES

S. No	BIS Standard	Description
1.	IS 13360 Part 5:Sec 25	Plastic - Methods of Testing - Part 5 : Mechanical Properties - Section 25 :Determination of Tensile Properties - Test Conditions for Isotropic and Orthotropic Fibre-Reinforced Plastic Composites
2.	IS 15768:2007	Textiles - Resistance of ignition of upholstered composite used for non-domestic furniture(Based on EN)
3.	IS 10661: 1983	Specification for Glass Fibre Reinforced Polyester Chemical Resistant Tanks
4.	IS 12701: 1996	Rotational moulded polyethylene water storage tanks
5.	IS 14399: Part 1 & 2	Hot Press Moulded Thermosetting Glass Fibre Reinforced Polyester Resin (GRP) Sectional Water Storage Tanks : Part 1 palels, Part 2: Guidelines for assembly, installation and test
6.	IS 11852: Part 1 to 8: 2001	Automotive Vehicles - Brakes and Braking Systems - Part 1 to 8
7.	IS 11852: Part 9: 2003 8: 2001	Automotive Vehicles - Brakes and Braking Systems - Part 9
8.	IS 2742: Part 1,3,4 & 5: 1994	Automotive Vehicles - Brake Linings

S. No	BIS Standard	Description
9.	IS 2742: Part 2: 1994	Automotive Vehicles - Brake Linings
10.	IS 3302: 1986	Backing sheet for Stencil
11.	IS 11504: 1985	Criteria for structural design of reinforced concrete natural draught cooling towers
12.	IS 5746: Part 1: 1987	Woven Glass Fibre Fabrics for Plastic Laminates for Aerospace Purposes – Part 1: Loom-State Fabrics
13.	IS 5746: Part 1: 1987	Woven Glass Fibre Fabrics for Plastic Laminates for Aerospace Purposes – Part 2: Desized Fabrics
14.	IS 5746: Part 1: 1987	Woven Glass Fibre Fabrics for Plastic Laminates for Aerospace Purposes – Part 3: Finished Fabrics for use with Polyester Resin Systems
15.	IS 5746: Part 1: 1987	Woven Glass Fibre Fabrics Plastic Laminates for Aerospace Purposes - Part 1 : Loom-state Fabrics
16.	IS 5746: Part 2: 1987	Woven Glass Fibre Fabrics for Plastic Laminates for Aerospace Purposes - Part 2 : Desized Fabrics
17.	IS 5746: Part 3: 1987	Woven Glass Fibres Fabric for Plastic Laminates for Aerospace Purposes - Part 3 : Finished Fabrics for Use with Polyester Resin Systems
18.	IS 11273: 1992	Woven roving fabrics of 'E' glass fibre
19.	IS 5352(Part 2):1999	Textiles - Glass and Glass-Polyester Fibre Woven Tapes - Part 2 : Methods of Test
20.	IS 11320: 1997	Glass fibrerovings for the reinforcement of polyester and of epoxide resin systems
21.	IS 11551: 1996	Glass fibre chopped strand mat for the reinforcement of epoxy, phenolic and polyester resin systems
22.	IS 6746: 1994	Unsaturated Polyester Resin Systems – Specification

S. No	BIS Standard	Description
23.	IS 12709 : 1994	Glass fibre reinforced plastics (GRP) pipes, joints and fittings for use for potable water supply — specification
24.	IS 14402 : 1996	Glass fibre reinforced plastics (GRP) pipes, joints and fittings for use for sewerage, industrial waste and water (other than potable) — specification

BUILDTEX

S. No	BIS Standard	Description
1.	IS 10321(Part 1): 1982	Specification for 50-kg tents – General
2.	IS 10321(Part 2): 1982	Specification for 50-kg tents - Outer fly
3.	IS 10321(Part 3): 1982	Specification for 50-kg tents - Inner fly
4.	IS 11057:1984	Industrial safety nets
5.	IS 12989: 2010 / ISO 5912: 2003	Textiles-Camping tents- Specification
6.	IS 12991: 2005 / ISO 7152: 1997	Textiles Camping tents and caravan awanings - vocabulary and list of equivalent terms
7.	IS 15272: 2009/ ISO 8936:2003	Textiles – Caravan Awnings – Safety Requirements – Specification (First Revision)
8.	IS 15566: 2005	Caravan awning – functional requirements and test methods
9.	IS 7609:1988	General requirements for tents (first revision)

4 STANDARDS COMMITTEES

The non-availability of standards of technical textiles in Indian context is one of hindrance in growth of technical textile sector in India, as it is being discussed at various forums. Bureau of Indian Standards (BIS) is the empowered organization in the country for notification of the standards. In order to quicken the process of notification of standards of technical textile by BIS, Office of Textile Commissioner in its endeavor has constituted Committees for Standards one each at four of its Centers of Excellence(COEs) in their respective segments, with the Director of respective COE as convener. These committees are entrusted to formulate the draft standards in their respective segment, so that same could be sent to BIS for further action.

Following is the composition of the four standards committees for Geotex, Agrotex, Meditex and Protex:

1. Composition of the Geosynthetics Committee

S. No	Name and Address	
(i)	Mr. M. Venkataraman, Advisor, Geosynthetics Division, Garware Wall Ropes Ltd	Member
(ii)	Mr. V.V. Vaishampayan, Managing Director, Sohams Foundation Engg. Pvt. Ltd	Member
(iii)	Mr. Narendra Dalmia, Director, Strata Geosystems (India) Pvt.Ltd	Member
(iv)	Mr. Sanjay Mendiratta, Director, Applications Engg. & Marketing / Archana Structural Engg (India) Pvt. Ltd.	Member
(v)	Mr. Anant Kanoi, Managing Director, Techfab (India) Ind. Ltd	Member
(vi)	Mr. Roli Jindal, Business Manager, D.I. Dupont India P. Ltd	Member
(vii)	Dr. S.Y. Mhaiskar, Joint Principal, Prof. &HOD Civil Engg. Dept, Sardar Patel College of Engineering	Member

S. No	Name and Address	
(viii)	Mr. Anand Katti, Principal, Datta Meghe College of Engineering	Member
(ix)	Mr. C. K. Choudhary, Supreme Nonwovens	Member
(x)	Mr. T. Sanyal, Geotechnical Advisor, Jute Manufactures Development Council	Member
(xi)	Dr M K Talukdar, Kusumgar Corporates Private Limited	Member
(xii)	Shri J.C.Parihar, Sr. Executive Director / his representative Geo-technical Engineering, RDSO, Lucknow	Member
(xiii)	Sh. Guru Vittal, Scientist, Geotechnical Engg. Division, CRRI, New Delhi	Member
(xiv)	Mr. Sharad Varshney, Addl. Director (Technical), Indian Roads Congress	Member
(xv)	Mr. V.G. Bhave, Chief Research Officer, Central Water and Power Research Station	Member
(xvi)	Dr. A. N. Desai, Director, The Bombay Textile Research Association, Mumbai	Convener

2. Composition of the Agro textiles Committee:

S. No	Name and Address	
(i)	Shri Amit Kumar Agarwal, Managing Director, CTM Technical Textiles Ltd.	Member
(ii)	Shri M. Venkataraman, Advisor (Geosynthetics Division), Garware-Wall Ropes Ltd	Member
(iii)	Dr. Pritam Chandra, Director, Central Institute of Agriculture Engineering	Member
(iv)	Shri Khetan Chandrakant / or his representative, Entremonde Polyesters Ltd.	Member
(v)	Dr. V. K. Kothari, Professor, Department of Textile Technology, IIT, Delhi	Member
(vi)	Shri Nitin Bhojani, Partner, B & V Agro	Member
(vii)	Dr.S.K. Basu, Director, MANTRA	Member

S. No	Name and Address	
(viii)	Mr. Sunil Trivedi, Neocorp International	Member
(ix)	Dr. R. G. Patil, Head, Water & Soil Management Department	Member
(x)	Shri R.K. Agarwal, Assistant Director, National Horticulture Board, Ministry of Agriculture, Govt.of India	Member
(xi)	Shri U. K. Gangopadhyay, Director, Silk & Art Silk Mills Research Association	Convener

3. Composition of the Medical textiles Committee:

S. No	Name and Address	
(i)	Mr. A. Shanmugavasan, Managing Director / Mr. S. Kumar Subramanian, Deputy General Manager, K. O. B Medical Textiles Pvt. Ltd	Member
(ii)	Mr. K. Sunil, Vice President, TTK Healthcare Ltd (Heart Valve Division)	Member
(iii)	Mr. Shishir Jaipuria, Managing Director / Mr. Rahul Bansal, Assistant General Manager, Ginni Filaments Ltd.	Member
(iv)	Dr. K. S. Saini, Vice President Research Quality Assurance & Regulatory Affairs /Or his representative, Johnson & Johnson	Member
(v)	Mr. Ajay Sahni, Sr. Business Development Manager, Ahlstrom Fibre Composites India Pvt. Ltd	Member
(vi)	Dr. A.K. Rakshit, Vice President – Product Development, Reliance Industries Ltd	Member
(vii)	Mr. Manohar Samual, Sr. Vice President (Strategic Planning), Grasim Industries Ltd.	Member
(viii)	Shri P Bhatnagar, Standardisation Head (Textiles), Bureau of Indian Standards	Member
(ix)	Dr. G. S. Bhuvaneswar, Head/ Mr.C.V. Muraleedharan, Scientist-F, Biomedical Technology Wing, Sree Chitra Tirunal Institute for Medical Science & Technology	Member
(x)	Dr. Bhuvanesh Gupta, Associate Professor, Department of Textile Technology, Indian Institute of Technology	Member
(xi)	Dr. Arindam Basu, Director, The South India Textile Research Association	Convener

4. Composition of the Protective textiles Committee:

S. No	Name and Address	
(i)	Dr. V. K. Kothari, Deptt. of Textile Technology, Indian Institute of Technology	Member
(ii)	Dr. M.P. Aggarwal, M/s Shri Lakshmi Cotsyn Ltd	Member
(iii)	Mr. Basant Lohia, M/s Tara Safe International Pvt. Ltd.	Member
(iv)	Shri. Milind Hardikar, Group President – Project & Technologies, M/s Arvind Limited	Member
(v)	Mr. Pawan Sharma, M/s Jaya Shree Textiles (Aditya Birla Nuvo Ltd)	Member
(vi)	Mr. K.D. Singh, M/s RSWM Limited	Member
(vii)	Mr. Sandeep Khanna, M/s Adigear Group	Member
(viii)	Dr. A. K. Sharma, ATIRA	Member
(ix)	Dr M K Talukdar, Kusumgar Corporates Private Limited	Member
(x)	Mr. Sandip Hora, M/s Aeronav Industrial Safety Appliances	Member
(xi)	Dr. R. P. Singh, Additional Director, Center for Fire Explosives & Environment Safety, DRDO	Member
(xii)	Mr. Sarjeet Singh, Commander, Integrated Headquarters of MOD, Dte of Clothing & Victualling, New Delhi	Member
(xiii)	Mr. Shalender Singh, Director, Carriage R.D.S.O., Lucknow	Member
(xiv)	Shri Khetan Chandrakant, Entremonde Polyesters Ltd	Member
(xv)	Dr. J.V. Rao, NITRA	Convener

The role and responsibilities for each of the Committee on Standards are as follows:

1. Fixing specification standards for various physical / chemical / mechanical / hydraulic properties as required for different products and uses.

2. Suggesting standard methods of tests for the above characteristics.

3. Identifying Indian laboratories with accreditation to ISO 17025 for testing and certifying the technical textiles.

4. Suggesting additional equipments that may be required by Indian laboratories to test the range of properties of technical textiles.

5. To make any other recommendation as may be appropriate.

Besides the existing four standards committees, the formulation of additional four standards committees in the areas of Nonwovens, Composites, Indutex and Sportex is under process. These standard committees are being formed with the respective COE for each of the mentioned segment, and director / principal will be acting as the convener of the committee.

Monitoring Committee for Standards

In the Empowered Committee meeting held at Ministry of Textiles on 02.05.2011, the progress on formulation of draft standards and notification of same by BIS were discussed and it was decided that a monitoring Committee for Standards should be constituted under Joint Secretary (Technical Textiles) with members from user industries and Director of COEs as members, for monitoring the notification of standards by BIS. Accordingly a monitoring Committee for Standards with following composition has been constituted for monitoring the notification of standards of technical textile:

S. No	Name and Address	
i.	Sh. Sujit Gulati, Joint Secretary / Ministry of Textiles	Chairman
ii.	Sh. A.B Joshi, Textile Commissioner/ Office of the Textile Commissioner	Member
iii.	Director (Handling Technical Textiles), Ministry of Textiles	Member
iv.	Sh Ajay Pandit, Deputy Director/ Office of the Textile Commissioner	Member
v.	Scientist E (Textiles), / Sh. J.K.Gupta, Deputy Director, BIS	Member
vi.	Sh. U.K. Gangopadhay, Executive Director/ SASMIRA	Member
vii.	Sh. A.N.Desai, Director/BTRA	Member
viii.	Dr Prakash Vasudevan, Director/SITRA	Member

S. No	Name and Address	
ix.	Dr. A. K. Sharma, Director/ ATIRA	Member
x.	Dr. G. Thilagavathi, Professor & Head, Department of Textile & Fashion Technology, PSG College of Technology	Member
xi.	Prof. (Dr.) P. V. Kadole, Vice Principal (Admn.) & Head of Textile Department, DKTE College of Engineering	Member
xii.	Sh Khetan Chandrakant, Entremonde Polyesters Ltd	Member
xiii.	Sh. Mohan Kavrie, M/s Supreme Non wovens	Member
xiv.	Sh. M.K. Talukdar, M/s Kusumgar Corporates	Member
xv.	Sh. Milind Hardikar, M/s Arvind Limited	Member
xvi.	Sh. Nitin Bhojani, B & V Agro	Member
xvii.	Sh. Amitkumar Agarwal, CTM Technical Textiles Ltd	Member
xviii.	Dr. R. G. Patil, Head, Water & Soil Management Department, Navsari Agricultural University	Member
xix.	Sh. Narendra Dalmia, Strata Geosystems (India) Pvt. Ltd	Member
xx.	Sh. T. Sanyal, Geotechnical Advisor, Jute Manufactures Development Council	Member
xxi.	Sh. K. Sunil, Vice President, TTK Healthcare Ltd	Member
xxii.	Sh. Shishir Jaipuria, / Mr. Rahul Bansal, Ginni Filaments Ltd	Member
xxiii.	Representative from ITTA	Member
xxiv.	Representative from M/s Ernst & Young Pvt. Ltd.	Member
xxv.	Dr. J.V Rao, Director/ NITRA	Member Secretary

The role and responsibilities of Committee for monitoring the notification of standards are:

1. Committee will monitor the progress of Draft standards being made by various standards committees on technical textiles constituted by Office of Textile Commissioner.

2. Committee will monitor the progress of notification of standards which have been forwarded to BIS and which are being formulated and notified by BIS through other committees of BIS.

3. Committee will discuss the difficulties being faced by standard committees in formulating standards and will suggest remedial measures.

4. To make any other recommendation as may be appropriate.

Industry participation in committees

These committees are a platform that the Office of Textiles Commissioner, Ministry of Textiles, Government of India has created for the industry stakeholders to participate in development of standards in the technical textiles industry. Interested entrepreneurs, manufacturers of technical textiles and other stakeholders can associate themselves with the committees of their interest and participate in the process of standards formulation by suggesting the products for which standards are required and helping the committee in drafting the standards. Interested companies can send their requests / proposals to the following address, for participation in the standards committee:

Office of the Textile Commissioner

New CGO Building, Nishtha Bhavan,48,
New Marine Lines, Mumbai – 400020
ttcell-otxc@nic.in
www.technotex.gov.in

Interested stakeholders can also get in touch with the committee members directly or through the Center of Excellence representatives mentioned in the committee members list.

5 STATUS OF PROPOSED STANDARDS FORMULATED BY COMMITTEES AND SUBMITTED TO BIS

The standards committee formed at the Office of Textiles Commissioner, Ministry of Textiles, Government of India formulates draft standards and submits the same to BIS from time to time. Many of the standards proposed and formulated by the standards committees have been notified and circulated by the BIS in the recent past. Following provides a summary of the status of proposed standards in different segments of technical textiles, formulated by committees and submitted to BIS for their approval.

PROTEX

Printed and sent for notification

1. Doc.Txd 32(766) - Protective clothing Part 3 Resistance of materials to penetration by liquids: *IS 15758 (Part3): 2007*

Finalised Drafts under print

2. Doc.Txd 32(832) Textiles - Resistance To Ignition Of Mattresses, Divans and Bed Bases – Specification

Draft amendments on Fire Retardant Textiles under print

3. Doc.Txd 32(1196) - Draft amendment No. 1 to IS 15741:2007 Textiles - Resistance to ignition of curtains and drapes – Specification

4. Doc.Txd 32(1197) - Draft amendment No. 1 to IS 15742:2007 Textiles - Requirement for clothing made of limited flame spread material and material assemblies affording protecting against heat and flame – Specification

5. Doc.Txd 32(1198) - Draft amendment No. 1 to IS 15748:2007 Textiles - Protective clothing for industrial workers exposed to heat (excluding firefighters' and welders' clothing)

6. Doc.Txd 32(1199) - Draft amendment No. 1 to IS 15768:2008 Textiles - Resistance to ignition of upholstered composites used for non-domestic furniture – Specification

Preliminary draft under preparation

7. Doc.Txd 32(1119) - Textiles - Lightweight bullet proof jackets –Specification

8. Doc.Txd 32(1222) – Textiles-Protection Gloves for Firefighters - Laboratory Test Methods and Performance Requirements (Based On ISO 15383: 2003)

9. Doc.Txd 32(1223) – Textiles - Protective Clothing for Firefighters - Laboratory Test Methods and Performance Requirements (Based On ISO 11613 : 1999)

10. Doc.Txd 32(1224) – Textiles-Protective Clothing for Firefighters - Laboratory Test Methods and Performance Requirements for Wild Land Firefighting Clothing (Based On ISO 15384 : 2003)

11. Doc.Txd 32(1225) – Textiles-Protective Clothing for Firefighters - Laboratory Test Methods and Performance Requirements for Protective Clothing With A Reflective Outer Surface (Based On ISO 15538 : 2001)

12. Doc.Txd 32(1226) - Textiles - Protective clothing for use in welding and allied processes (Based on ISO 11611:2007)

13. NYCO Combat Uniforms

14. Pouch for ammunition and grenades made of nylon 66

15. Tactical 3 Point Sling Universal

New Items

16. Doc.Txd 32(9001) - Recommendations for preparation of revised specification of IS: 6685-1972 "life jackets"

Geotex

Printed and sent for notification

17. Specifications of Geosynthetics for Highways: *IS 15910:2010*
18. Jute Geo-Textiles - Part 1 Strengthening of Sub Grade in Roads and Control of Bank Erosion in Rivers and Waterways (First Revision of IS 14715) *IS 14715 (P-1): 2013*
19. Jute Geo-Textiles - Part 2 Control of Bank Erosion in Rivers and Waterways (First Revision of IS 14715) *IS 14715 (P-2): 2013*

Finalised drafts under print

20. Doc.Txd 30 (959) Guidelines for Application of Coir Geotextiles (Coir Woven Bhoovastra) for Rain Water Erosion Control in Roads, Railways Embankments and Hill Slopes
21. Doc.Txd 30(982) Method of Test for Determination of California Bearing Ratio
22. Doc.Txd 30(983): Method of Determination of Apparent Opening Size of Geo-Textiles by Wet Sieving
23. Doc.Txd 30(985) Specification for Geotextiles used as Protection (or Cushioning) Material

Draft Standards Finalized But Not Yet Under Print

24. Doc.Txd 30(1073): Design practice for installation of geotextiles as pavement fabric
25. Doc.Txd 30(1074): Guidelines for installation of geotextile used in Subsurface drainage application
26. Doc.Txd 30(1075): Guidelines for installation of geotextile for permanent Erosion Control in Hard Armor Systems
27. Doc.Txd 30(1076): Guidelines for installation of geotextile used in subgrade separation in pavement structures
28. Doc.Txd 30(1077): Guidelines for installation of geogrids used as reinforcement of base and subbase layers in pavement structure

29. Doc.Txd 30(1078): Guidelines for installation of geogrids as soil reinforcement in mechanically stabilized earth (MSE) retaining structures

30. Doc.Txd 30(1122): Standard Test method for Biological clogging of geotextile or soil/ Geotextile filters

31. Doc.Txd 30(1123): Standard test method for effect of temperature on stability of geotextile

32. Doc.Txd 30(1124): Standards practice for laboratory immersion procedures for evaluating the chemical resistance of geosynthetics to liquids

33. Doc.Txd 30(1125): Geotextiles - method of test for grab breaking load and elongation

34. Doc.Txd 30(1025): Specification for geo-textiles used in subsurface drainage application

35. Doc.Txd 30(1026): Specification for geo-textiles for permanent erosion control in hard armor systems

36. Doc.Txd 30(1027): Specification for geo-textiles used in subgrade separation in pavement structures

37. Doc.Txd 30(1028): Specification for geo-textiles used in subgrade stabilisation in pavement structures

38. Doc.Txd 30(1029); Specification for geo-grids used as reinforcement of base and subbase layers in pavement

39. Doc.Txd 30(1030): Specification for geogrids used as soil reinforcement in mechanically stabilised earth (MSE) retaining structures

Draft standards completed wide circulation

40. Doc.Txd 30(1079): PVC Geo-membranes for lining - Specification (First revision of IS 15909)

Draft standards under wide circulation

41. Doc.Txd30(1178)- Geo-synthetics - method of test for evaluation of Stress crack resistance of polyolefin geomembranes using notched constant tensile load test

42. Doc.Txd 30(1179) - Geotextiles - method of test for pore size characteristics of geotextiles by capillary flow test

43. Doc.Txd 30(1180) - Geo-synthetics - Standard practice for exposure and retrieval of samples to evaluate installation damage of geosynthetics

44. Doc.Txd 30(1182) - Geo-synthetics - Method of test for index puncture resistance of geomembranes and related products

45. Doc.Txd 30(1183) - Geo-synthetics - Determination of weld strength of geocell

46. Doc.Txd 30(1184) - Geo-synthetics - Method of test for determination of 2 percent secant modulus for polyethylene geomembranes

47. Doc.Txd 30(1185) - Geo-synthetics - Method of test for determination of pyramid puncture resistance of unprotected and protected geomembranes

48. Doc.Txd 30(1186) - Geo-synthetics - Method of test for tensile properties of geo-grids by the single or multi-rib tensile method

49. Doc.Txd 30(1187) - Geo-synthetics - method of test for determination of performance strength of geomembranes by wide strip tensile method

50. Doc.Txd 30(1188) - Geo-synthetics - Method of test for evaluating the chemical resistance of geomembranes to liquids

51. Doc.Txd 30(1189) - Geo-synthetics - Method for microscopic evaluation of the dispersion of carbon black in polyolefin geo-synthetics

52. Doc.Txd 30(1191) - Geo-synthetics - Method of test for deterioration of geotextiles from outdoor exposure

53. Doc.Txd 30(1192) - Geo-synthetics - Method of test for determination of (in-plane) hydraulic transmissivity of a geo-synthetic by radial flow

54. Doc.Txd 30(1193) - Geo-synthetics - Method of test for measuring geo-synthetic pullout resistance in soil

55. Doc.Txd 30(1194) - Geotextiles - Method of test for permittivity of geotextiles under load

56. Doc.Txd 30(1195) –Geosynthetics - Specification for needle punched non-wovengoebags for coastal and waterways

Draft standard approved for wide circulation

57. Doc.Txd30(961) Natural Fibre Geotextiles (Jute Geo Textiles) and Coir Geotextiles (Coir Bhoovastra) - Glossary of Terms for Erosion Control Products- Ok at this position

Draft Standards under Preparation

58. Test method for determining connection strength between geosynthetics reinforcement and segmental concrete units

59. Test method for vertical strip drain using a large scale consolidation

60. Determination of chemical resistance of geogrid to liquid

61. Test method for measuring the soil geotextile system clogging potential by the gradient ratio

62. Test method to determine asphalt retention of paving fabrics used in asphaslt paving applications

AGROTEX

Printed and sent for notification

63. Textiles - Woven ground covers for horticulture application- Specification: IS 16190:2014

64. Textiles- High Density Polyethylene (HDPE) laminated woven fabric lay flat tubes for irrigation purpose - Specification: IS 16202:2014

65. Jute Agro-Textile - Sapling Bags for Growth of Seedling /Sapling – Specification: *IS 16089:2013*

66. Agro-Textiles - Shade nets for agriculture and horticulture purposes- Specification: *IS 16008: 2012*

67. Textiles – Shade Nets 50% for Agriculture Application – Specification: *Clubbed into Standard no: IS 16008:2012*

68. Textiles – Shade Nets 75% for Agriculture Application – Specification: *Clubbed into Standard no: IS 16008:2012*

69. Textiles – 90% Shade Nets for Agriculture Application – Specification: *Clubbed into Standard no: IS 16008:2012*

70. Textiles- High density polyethylene (HDPE// polypropylene (PP) leno woven sacks for packaging and storage of fruits and vegetables- *Standard no: IS 16187:2014*

Draft standards issued in wide circulation

71. Doc.Txd 35(1235) - Draft amendment No 2 to IS 15907:2010 - Agro textiles - High Density Polyethylene (HDPE) Woven Beds for Vermiculture - Specification

72. Doc.Txd 35(1236) - Draft amendment No 2 to IS 16008:2012 - Agro Textiles - Shade Nets for Agriculture and Horticulture Purposes – Specification

Draft standards approved for wide circulation

73. Doc.Txd 35(1023) - Glossary of terms used in agro-textiles

74. Doc.Txd 35(1128) - Textiles- Polypropylene spun bonded non-woven crop cover fabric for agricultural and horticultural applications - Specification

Draft standard formulated

75. Doc.Txd 35(1127) - Textiles-Specification for bird protection nets

76. Doc.Txd 35(1173) - Textiles - Nylon knitted seamless gloves for tobacco harvesters - Specification

Draft under preparation

77. Doc.Txd 35(980) - Jute Agro-Textiles for Growth of Plants and Suppression of Weeds-Specification

78. Doc.Txd 35(1237)- Textiles - Non woven ground covers for horticulture application-Specification

MEDITEX

Draft standards finalized but not yet under print

79. Doc.Txd 36(1035): Medical textiles - Surgical face masks
80. Doc.Txd 36(1042): Medical Textiles - method for evaluation of the bacterial filtration efficiency of surgical face masks
81. Doc.Txd 36(1107): Medical Textiles - Paraffin Gauze dressings – Specification
82. Doc.Txd 36(1108): Medical Textiles - Knitted viscose primary dressings – Specification
83. Doc.Txd 36(1157): Textiles - Determination of antibacterial activity of antibacterial finished products (ISO 20743: 2007)
84. Doc.Txd 36(1058): Textiles fabrics - Determination of antibacterial activity - Agar diffusing plate test (ISO 20645: 2004)

Draft standards completed wide circulation

85. Doc.Txd 36(1059): Medical Textiles - Tubular bandages - Specification
86. Doc.Txd 36(1060): Medical Textiles –Orthopaedic Stockinette– Specification
87. Doc.Txd 36(1171): Medical Textiles - Cast padding for Orthopaedic plaster – Specification

Draft Standards Formulated

88. Doc.Txd 36(1031): Medical textiles - Surgical drapes - Specification
89. Doc.Txd 36(1032): Medical textiles - Surgical gowns – Specification

Preliminary draft under preparation

90. Medical textiles - Nonwoven gauze bandage - Specification

INDUTEX

Printed and sent for notification

91. Textiles- Test method for non-wovens - Part 1 Determination of mass per unit area: *IS 15891 (Part 1) : 2011*
92. Textiles- Test method for non-wovens - Part 2 Determination of thickness: *IS 15891 (Part 2) : 2011*
93. Textiles- Test method for non-wovens - Part 3 Determination of tensile strength and elongation: *IS 15891 (Part 3) : 2011*
94. Textiles- Test method for non-wovens - Part 4 Determination of tear resistance: *IS 15891 (Part 4) : 2011*
95. Test Methods for Nonwovens Part 6 Absorption: *IS 15891 (Part 6) : 2012*
96. Textiles - Test Methods for Nonwovens Part 7 Determination of Bending Length: *IS 15891 (Part 7) : 2012*
97. Textiles - Test Methods for Nonwovens Part 8 Determination of Liquid Strike - Through Time (Simulated Urine): *IS 15891 (Part 8): 2012*
98. Textiles-Test Methods for Non-wovens Part 9 Determination of Drapability including Coefficient: *IS 15891 (Part 9) : 2012*
99. Textiles-Water proof tarpaulins made from woven polyester fabric: *IS 16126 : 2013*

BUILDTEX

Draft standards approved for wide circulation

100. Doc.Txd 34(1145) - Textiles - Synthetic Fibers for reinforcement in concrete for use in construction works - Specification
101. Doc.Txd 34(1131) - Camping tents (Revision of IS 12989, identical to ISO 5912:2011)

6 STANDARDS IDENTIFIED BY STANDARDS COMMITTEE OF RESPECTIVE COE

The development of standards is an ongoing and long term process. Though the BIS is entrusted and finally takes the responsibility of publishing the standards, the COE will prepare initial draft and propose the standard. This will be open for industry, users and academicians to use and suggest modifications towards final entrusted draft. Formulating standards is one of the important activities of COE. All COEs have initiated the process for identifying the existing standards for the gamut of products that fall under their respective segments.

Development of Indian standards in tune with the international standards for the products produced and used in India considering the prevailing technology of production available here, apart from improving marketability of the product will also be able to help manufactures with predictable production conforming to standards with least possible waste and lesser time improving profit margins.

Below are the standards identified for sub segments of Technical Textiles by their respective COEs which are imperative for boosting the growth of the sector in India.

Protex

Standard needs to be amended as per current requirement

1. Nylon Life Jacket with expendable polyethylene foam, buckle and whistle plastic (Revision required in BIS standard framed in 1972)

Standards to be formulated

1. Unarmed Combat dress
2. Durable Rucksack made of Nylon 66
3. Multipurpose light weight load bearing frame with carrier facility and convertibility as stretcher (Aluminum)

4. Anti-Mosquito Veil
5. Water Proof multipurpose rain poncho with convertibility as bivouac
6. Rain coat
7. U.V. Protective wear

Agrotex

Standards to be formulated

1. Non-woven fruit protective covers (under testing for specifications)
2. Non-woven crop covers (under testing for specifications)
3. Knitted Bird Nets 2" mesh
4. Insect nets for white fly
5. Harvesting Nets for mechanized harvesting
6. Harvesting nets for manual harvesting
7. Knotted bird nets 1" mesh
8. Knotted bird nets 2" mesh
9. Knitted crop covers

Meditex

Standards under preparation

1. Graduated Medical Compression Stocking
2. Absorbent Cotton
3. Open Weave Bandage
4. Elastic Surgical adhesive tape

Standards to be formulated

1. Vascular grafts
2. Hernia mesh
3. Heart patch fabric
4. Combine/wound dressing
5. Gauze Absorbent Non sterilized

6. Swab with X-Ray detectable filaments 10x10 cm –12 ply
7. Eye Pad
8. Colored /White Polypropylene/ Polyester Nonwoven Fabric for Boufnet cap
9. Colored /White Polypropylene/ Polyester Nonwoven Fabric for surgeons' cap, Nurses' cap, Hood cap
10. Tie-band for all caps & face mask
11. Surgical Gown with barrier properties
12. Barrier Performance of surgical gowns
13. Compression crepe bandage
14. Elastic adhesive Bandage
15. Povidone Iodine ointment based knitted dressing, Burn dressing (BP)
16. Surgical adhesive tape
17. Adhesive bandage with medicated center pad (for minor cuts & wounds)

Indutex

Standards under preparation

1. Tear strength of bolting cloth
2. Tensile Testing for Foundation Fabric
3. Peel off Test for Foundation fabric
4. Testing of tire cord

Standard to be formulated

1. Testing of Accoustic materials

Composites

Standards under preparation

1. FRP Cable tray manufacturing standard
2. Cable tray installation standard
3. Composite & other materials for portable FRP Ladder

7 RECOMMENDATION FOR STREAMLINING FORMULATION AND ACCEPTANCE OF STANDARDS

Standards are the first step towards ensuring regulatory use of technical textile products. The establishment of standards for key technical textile products will provide Indian authorities a foothold in moving towards a regime of mandatory usage regulation. The user industry, which is largely dependent on imports for such products, will also be able to ensure the quality of manufactured products. This will create a pull for technical textile products and lead to the overall development of the sector.

The strong enforcement of regulated standards will unleash several opportunities in the technical textiles industry that will provide mutual benefits to stakeholders, such as:

- Trade facilitation
- Check the use and import of poor quality products
- Support in technical aspects of societal and environmental policies, which will also contribute to sustainable development, safety and security of country
- Offer the same level of consumer protection across mature and evolving economies
- Allow products to be supplied and used across different markets, thus enhancing the market access opportunities for small enterprises
- Harness and disseminate new and advanced state-of-the-art technology and innovative practices
- Provide tools for assessing conformity and for enhancing confidence in products, systems, processes, services or personnel

Recommendations:

1. Industry should further identify, prioritize and formulate standards in conjunction with COEs

2. Increased participation of industry in Technical Committee meeting held by BIS for standard formulation

3. BIS, Industry Associations and COEs should market and publish the standards throughout the supply chain to create awareness amongst the stakeholders to encourage acceptance

    - Awareness through wide stakeholder participation programmes like seminars
    - Awareness through written communication to institutional bodies
    - Publication of relevant standards on the websites of concerned ministries (such as M/o Agriculture, Health & Family Welfare, Defence, Sports, etc), including M/o MSME and M/o Commerce
        - For eg: Ministry of Agriculture may be encouraged to use IS 16008 for Shade nets provided under various scheme of Ministry of Agriculture

4. Mandating of certain standards in the interest of public health, safety and environment for use of Fire retardant textiles in public places like Multiplexes, Malls, Building etc.

5. Conducting regular stakeholder consultation to identify issues and challenges in acceptance and implementation of standards, as well as to identify international industry's demand for quality certified products

6. Benchmarking study on global standards for Technical Textile segment

8 IMPORTANT CONTACT DETAILS

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