



# **Standardization in the field of Agro Technical Textiles-Scope for Increasing Agriculture Productivity**

**3<sup>RD</sup> NATIONAL CONCLAVE ON STANDARDS  
FOR TECHNICAL TEXTILES – 2 & 3 NOV 2017, NEW DELHI**

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# AGROTECH SECTOR AT A GLANCE

- Agrotech includes technical textile products used in agriculture, horticulture, fisheries, animal husbandry and forestry. The key products include Pond linings, shade nets, crop covers, vermibeds, mulches, lay flat tube for irrigation, Fishing nets/gear, insect nets, anti hail nets and bird protection nets etc.
- Agrotech is projected to grow to Rs. 1191 crore in 2015-16 at 12% CAGR and to Rs. 1614 crore by 2017-18 driven primarily by domestic market growth of Shade Nets and export market growth of fishing nets.
- The consumption of agrotech is driven by subsidy and incentives provided by NHM/NHB for promoting protective cultivation.



# Standardization of Agrotech

- Standardization in the field of Agrotech including fishing nets/gear has been undertaken by the following two technical committees at BIS:
- **Technical Textiles For Agrotech Sectional Committee, TXD 35**
- Scope - To formulate Indian Standards for terminology, testing and specifications for technical textiles for agrotech application such as horticulture, agriculture, forestry and animal husbandry, etc.
- **Textile Materials for Marine/Fishing Purposes Sectional Committee, TXD 18**
- Scope - a) To formulate Indian Standards for terminology, methods of test and specifications and for textile materials and accessories used for fishing/aquaculture purposes.
- b) To formulate guidelines for fishing gear.
- Under agrotech, 47 standards have been formulated and 9 standards are development.



# IMPLEMENTATION OF STANDARDS ON TECHNICAL TEXTILES

Indian Standard with title	No. of licences
IS 15351:2008 Agro textiles- Laminated high density polyethylene (HDPE) woven fabric (geo-membrane) for water proof lining	33
IS 15907 : 2010 Agro textiles – High density polyethylene (HDPE) woven beds for vermiculture	14
IS 16008 (Part 1):2016 Agro textiles - Shade nets for agriculture and horticulture purposes Part 1 Shade nets made from tape yarns	02
IS 16008 (Part 2):2016 Agro textiles - Shade nets for agriculture and horticulture purposes Part 2 Shade nets made from mono filament yarns	01



# IMPLEMENTATION OF STANDARDS ON TECHNICAL TEXTILES

Indian Standard with title	No. of licences
IS 16190:2014 Agro textiles – High density polyethylene (HDPE) laminated woven fabric lay flat tubes for irrigation purpose	04
IS 16513:2016 Agrotextiles – Insect nets for agriculture and horticulture purposes	01
IS 16352:2015 HDPE geomembranes for lining	01
IS 2508 Polyethylene films and sheets	18



# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

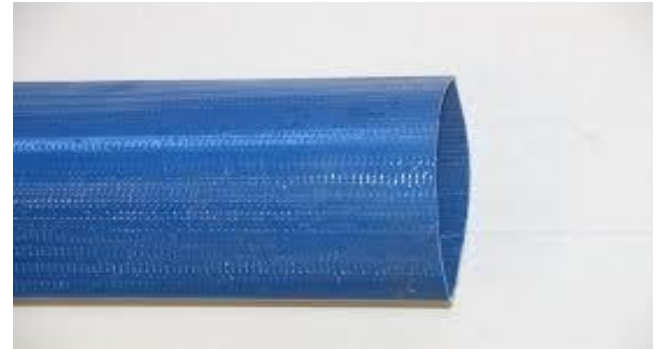
- **IS 16718:2017 Agro textiles- Polypropylene spun bonded non-woven crop cover fabric for agricultural and horticultural applications**
- Generally placed over plants, seedlings, and/or used as low tunnel to create a micro-climate
- Ensure early growth and development of the plant/ crop with the valuable end result of both improvement in quality and yield.
- Protect the plant from cold and frost
- Includes type I and 2 crop cover of 17 and 22 GSM.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16627:2017 Agro textiles- High density polyethylene laminated woven lay flat tube for use in mains and submains of drip irrigation system**
- These lay flat tubes are flexible, foldable, light weight, easy to install.
- Suitable for farmers with low resources (having small land holding)
- Can be installed easily where land is undulated.
- Ideally suited for gravity mechanism.
- Includes sizes of 50, 63, 75 and 90 mm.
- Can sustain bursting pressure up to 8 kgf/cm<sup>2</sup>.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 15351:2015 Agro textiles- Laminated high density polyethylene woven geomembrane for water proof lining**
- Used as lining for canal, pond and reservoir to control seepage and for proper disposal of industrial effluents, etc.
- Includes four type of geomembranes of 0.25, 0.50, 0.75 and 1.00 mm thickness.
- Installation guidelines has been incorporated in this revised standard.







## IS 15351:2015

- Under NHM/SHM subsidy, community tanks of 44X44X5.4 meters lined with geomembranes are dug which can store about one crores liter of water.
- About 70% tanks are being dug without the govt. subsidy.
- Community tanks without subsidy are being dug by farmers up to the depth of 9 meters instead of 5.4 meters which can store about 1.7 crores liters of water.



# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 15907:2010 Agro textiles - High density polyethylene (HDPE) woven beds for vermiculture**
- Covers HDPE woven beds for vermiculture used in producing compost for agricultural purposes made from 340 GSM, 7 layer laminated fabric.
- Can produce about 800 to 1000 kgs of vermicompost in one cycle of about 45 days.
- It has the provision of collection of vermiwash.
- Vermibeds enjoy greater advantages over the traditional concrete ones in terms of space, durability, ease of handling, yield of compost, cost, etc.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- IS 16008 (Part 1):2016 Agro textiles - Shade nets for agriculture and horticulture purposes Part 1 Shade nets made from tape yarns
- Covers Agro shade nets manufactured from tape yarns for agriculture and horticulture purposes in protecting/ increasing crop yield by providing controlled climatic conditions for the intended crops.
- Includes three type of shade nets based on the shading factor of 50, 75 and 90%.
- Shading % is determined with the help of PAR sensor.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- IS 16008 (Part 2):2016 Agro textiles - Shade nets for agriculture and horticulture purposes Part 2 Shade nets made from mono filament yarns
- Covers Agro shade nets manufactured from mono filament yarns for agriculture and horticulture purposes in protecting/ increasing crop yield by providing controlled climatic conditions for the intended crops.
- Specify four type of shade nets based on the shading factor of 35, 50, 75 and 90%.



# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16202 : 2014 Agro textiles – Woven ground covers for horticulture application**
- Covers 100 GSM woven ground covers made from UV stabilised polypropylene tape yarns for applications in horticulture.
- Used to meet diverse needs of crops in the horticulture sector like suppression of weed growth around the plant, water conservation, soil temperature moderation, increase in yield etc. by blocking extreme climatic conditions of sunlight or cold.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16190:2014 Agro textiles – High density polyethylene (HDPE) laminated woven fabric lay flat tubes for irrigation purpose**
- Covers HDPE laminated woven lay flat tube of internal diameter 50, 63, 75, 90, 110, 125, 150, 175 and 200 mm for irrigation purpose.
- Mainly used at the delivery lines of the agriculture pump sets, which may be exposed to atmosphere and sunlight.
- Manufactured from 260 GSM, HDPE 5 layer laminated fabric and can sustain bursting pressure of 2.6 Kg/cm<sup>2</sup>.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16187:2014 Agro textiles — High density polyethylene (HDPE) / polypropylene (PP) leno woven sacks for packaging and storage of fruits and vegetables**
- Covers HDPE/PP leno woven sacks for packaging and storage of fruits and vegetables. The fabric used in the manufacture of leno sacks shall be woven on circular or flat looms.
- Includes leno bags of 25 and 50 kg capacity.





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- IS 16390:2015 Agrotextiles-Nylon knitted seamless gloves for tobacco harvesters
- This standard prescribes the constructional details and performance requirements of knitted seamless gloves, white, made from nylon yarn.
- Use of these knitted seamless nylon gloves by the workers, while cultivating and harvesting the tobacco plants, can significantly reduce the Green tobacco sickness.
- Specifies five sizes of gloves from Size 0 to Size 4.







# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16513:2016 Agrotextiles – Insect nets for agriculture and horticulture purposes**
- Covers insect nets for agriculture and horticulture purposes in protecting crop from insects such as aphids, whitefly, carrot fly, cabbage root fly and caterpillars etc.
- Specifies three types of insect nets based on their mesh size (30, 40 and 50 mesh).





# IMPORTANT PUBLISHED STANDARDS ON AGROTECH

- **IS 16089:2013 Jute Agro-Textile — Sapling bags for growth of Seedling/Sapling**
- Requirements of jute sapling bag made from hessian cloth of 272 GSM for growth of sapling in nursery has been covered.
- JAT is a natural fabric, made of jute fibre, that helps retain soil humidity at a conducive level, arrest desiccation of soil and attenuates extremes of temperature due to the intrinsic characteristics of jute and capacity to absorb water/moisture up to about 5 times of its dry weight. On bio-degradation, jute coalesces with soil, increasing its permeability and supplementing its nutrient level. JAT provides all these advantages without affecting eco-ambience adversely



# IMPORTANT STANDARDS UNDER DEVELOPMENT ON AGROTECH

## **Important Standards under development under TXD 35:**

- Agro textiles – Specification for bird protection nets
- Agro textiles- Specification for hail protection nets
- Agro textiles – PP non woven bunch covers
- Agro textiles – Specification for harvest nets
- Jute agro-textiles for growth of plants and suppression of weeds

## **Important Standards under development under TXD 18:**

**Guide For Fishing Gear Part 11 Silver Pomfret Gillnet**

**Guide For Fishing Gear Part 10 Seer Gillnet**

**Guide For Fishing Gear Part 25 Mackerel Gillnet**

**Guide For Fishing Gear Part 12 Sardine Gillnet**



THANK YOU



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