High-performance Bio Cellulose Fiber

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Tanboocel Fiber

Bamboo Fiber

- Bamboo-Wood Based →

• This fiber is a kind of physical fiber made from bamboo wood via the process of disparting and softening, and it is adhered with lignin cellulose to produce technical fibers and then to be used for spinning. Due to high proportion of lignin, the technical fiber made from it is rough and feels itchy with poor flexibility and weak physical properties. So, it has been never widely used since its early application.

- Bamboo-Pulp Based →

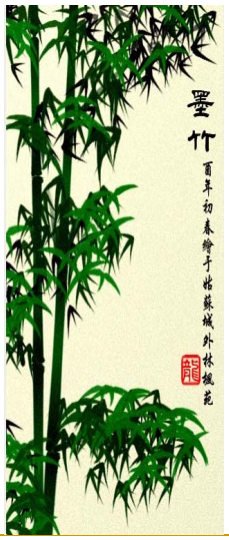
• This fiber is a kind of regenerated cellulose fiber (chemical fiber) made from fresh bamboo via the process of pulping and spinning. The fiber is smooth with fine skin feeling and high tenacity, and is a kind of new-type and healthy eco-textile feedstock, which is widely used in textile and garment industries currently.

As a result, the bamboo fibers on the market refer to bamboo-pulp-based fibers.

The Bamboo Fiber Brand from the Tanboocel Industry Federation

TAMBOOCEL Fiber → TANBOOCEL™ → Bamboo-pulp-based Fiber

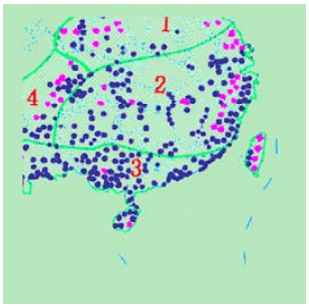
• Tanboocel fiber is a kind of regenerated cellulose fiber made from fresh bamboo in Sichuan, Yunnan, Fujian, Hunan, etc., via the patent technology of pulping and spinning. Its nice spinnability and wearability make it outstanding among many new-type fibers. Especially after Tanboocel Industry Federation was established in 2005, it has soon become one of the key textile feedstock following cotton, linen, silk and wool.



Bamboo

Bamboo is a kind of evergreen perennial plant with jointed hollow stems, and it is hard and has many categories. It has strong vitality and blossoms only once during its lifetime. It scatters in tropics, subtropics and temperate zones. In Sichuan, Yunnan, Hunan, etc., bamboos grow around the Tropic of Cancer in the subtropics monsoon climate which brings long frost-free season and ample light and heat. With an annual average temperature at 18-22℃ and sufficient sunlight hours every year, these regions are endowed with elegant landscape and beautiful scenery.

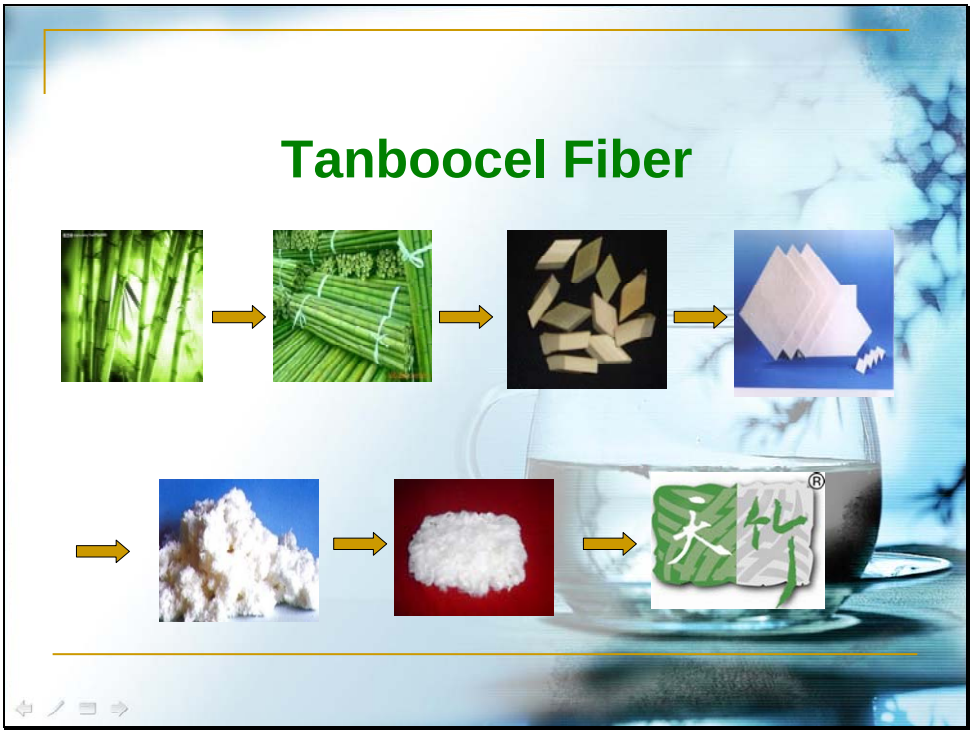
Distribution of Bamboo Resource



China has abundant bamboo resources, with over 500 kinds of bamboo listed in 48 categories, which generally scatter in the areas south of the 40° N line. The area of bamboo forest in China accounts for one fifth of the total areas in the world, with the current area of over 5 million acres and reserves of 160 million tons in China. Bamboo is a kind of rank vegetation. It can grow up in 2-3 years, with no need to irrigate, fertilize or use agricultural chemicals during its growth, which can be understood as cultivation at a time with no trouble anymore. Thus, it plays an import role to boost the economic development and increase peasants' income.

Bamboo Culture of Long Standing

Bamboo pole is tall, straight and slim, which makes bamboo enjoy the title of gentleman. Bamboo is always verdant all year long and it shows strong resistance to frost and snow. Besides, it is known as one of the four 'gentlemen' (namely, plum blossom, orchid, bamboo and chrysanthemum). Bamboo also owns the reputation of the three companions of winter (namely pine, bamboo and plum blossom). Many ancient and modern Chinese poets have shown great interests in bamboo or chanted bamboo in brilliant words.



Production Process Comparison with Conventional Viscose Fiber

Remove the process of alkali refining, bleaching, acid treatment, etc.	Each-ton fiber can save the usage of alkali, NaClO , HCl and water by 25 kg, 30 kg, 30 kg and 20 tons.	Green Production of Tanboocel Fiber
Adopt twice alkali leaching technology.	**Save carbon disulfide usage by 6%**	
Adopt exhaust fume treating technology	**Burn the fume to produce sulfuric acid for production.**	

Tanboocel Fiber

Tanboocel fiber, which uses widely yielded bamboo in China, is a kind of new-type bamboo-pulp-based cellulose fiber produced by Hebei Jigao Chemical Fibre Co., Ltd.

Science & Technology Support from the Government

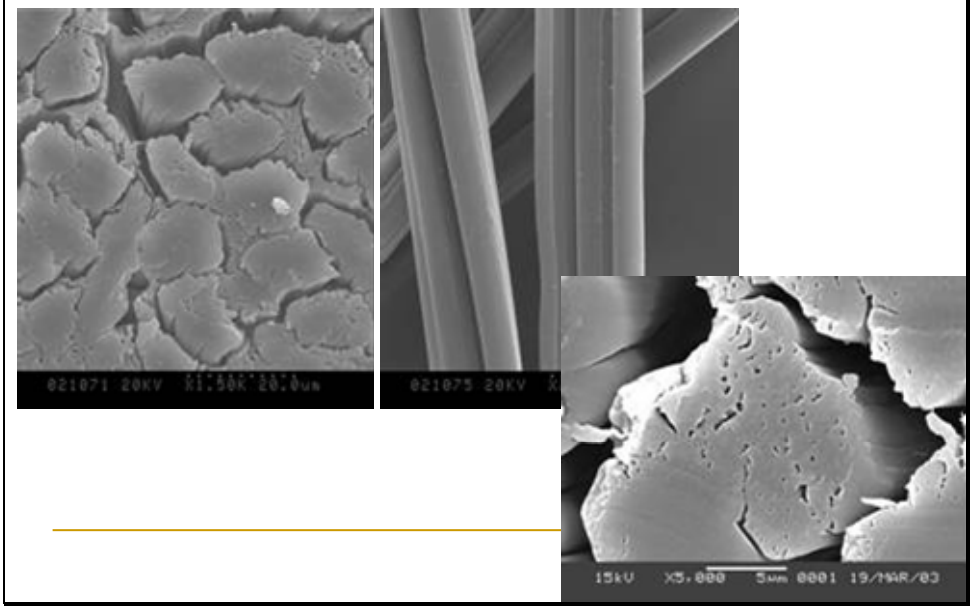
Project: Know-how for New-type Non-cotton Cellulose Fiber

Tasks: Know-how for Bamboo-pulp-based Fiber;
Know-how for Textile Processing and Dyeing & Printing of the Bamboo Fiber

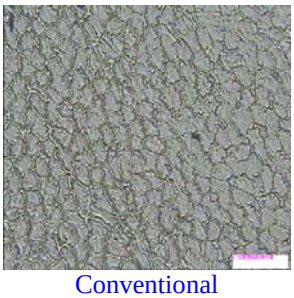
Responsible Entities: Hebei Jigao Chemical Fibre Co., Ltd.;
Suzhou University;
Donghua University --------

Contents: Basic Research on Physical & Chemical Properties of Bamboo Fiber;
Know-how for Bamboo Fiber Textile Processing;
Know-how for Bamboo Fiber Dyeing & Printing

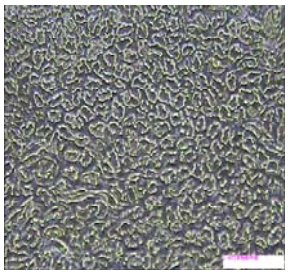
Morphological Structure of TANCOOBEL Fiber



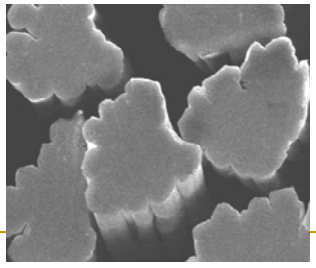
Structural Features of Tanboocel Fiber

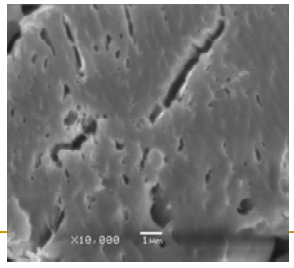


Conventional Viscose Fiber



Tanboocel Fiber





- There is significant difference of cross section between Tanboocel fiber and viscose fiber. There are more interspaces in the core of Tanboocel fiber, which form largely hollowed reticular structure. It endows Tanboocel fiber good air permeability and hygroscopicity, as well as more air content, which will restrain the survival of some anaerobes.

Specifications of Tanboocel Fiber

Item	Result	Item	Result
Length Deviation %	0.3	Elongation at Break %	22.5
Deviation of Linear Density %	−1.2	Wet Breaking Tenacity cN/dtex	1.3
Overlength Rate %	0.3	Overcut Fiber mg/100g	2.8
Dry Breaking Tenacity cN/dtex	2.3	Residual Sulfur mg/100g	8.5
Coefficient Variation of Dry Tenacity %	12	Defect mg/100g	1.0
Whiteness%	71.0	Oil Stain mg/100g	0

Dyeability of Tanboocel Fiber

Adsorption Kinetic Parameters of Chrastil Model

Direct Dyes	Fiber	k /(min^{-1})		k_{80}/k_{60}	E_a (kJ/mol)	C_∞ (mg/g)	
		60 °C	80 °C			60 °C	80 °C
Yellow 86	Tanboocel	0.01315	0.06163	4.69	75.55	17.93	14.31
	Viscose	0.00786	0.04318	5.49	83.32	18.61	14.49
Orange 39	Tanboocel	0.03024	0.05765	1.91	31.56	11.49	8.20
	Viscose	0.02461	0.05613	2.28	40.33	12.24	9.10

TANCOOBEL fiber has a more obvious core/sheath structure. Its initial dyeing rate is slightly higher than viscose fiber's, and its constant of dyeing rate is less affected by temperature than viscose fiber's, while diffusion activation energy of direct dyes on TANCOOBEL fiber is weaker than that on viscose fiber, which means TANCOOBEL fiber has better dyeability than viscose fiber.

Good Spinnability of TANCOOBEL Fiber

Averages of Friction Coefficient of Different Fibers

Fiber	Between Fiber & Rubber Roller				Between Fiber & Metal Roller			
	Static Fiction		Kinetic Fiction		Static Fiction		Kinetic Fiction	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Recycled Bamboo Fiber	0.484	0.525	0.400	0.416	0.199	0.196	0.236	0.213
Conventional Viscose Fiber	0.472	0.528	0.391	0.423	0.192	0.199	0.228	0.220
Tencel Fiber	0.455	0.531	0.380	0.423	0.184	0.200	0.221	0.219

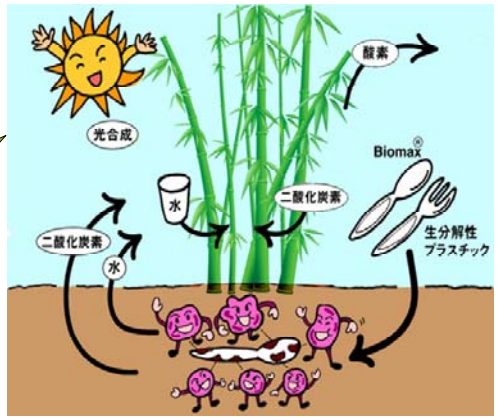
When mechanic processing is adopted, Tanboocel fiber can acquire good fiber cohesion with no special crimping process, and yarn made from it will have high tenacity and good spinnability.

Functions of Tanboocel Fiber


检验报告
TEST REPORT

Biodegradability of TANCOOBEL Fiber

Get from nature and nature will in turn benefit from it.



Characteristics of Tanboocel Fiber

- Outstanding Hygroscopicity
- Fine Air Permeability
- Excellent Dyeability
- Good Spinnability
- Natural Biodegradability

Applications of Tanboocel Fiber

Home Textiles: Towel, Bath Towel, Sheet, Quilt Cover, Curtain, Automobile Cushion, etc.

Knitted Goods: Warm-keeping Underwear, All-year-round Underwear, Flat-knitted & Circular-knitted T Shirt, Hosiery, etc.

Woven Garment: Jacket, Sportswear, Shirt, Jean, Suit, etc.

Nonwovens: Wet Tissue, Lining Cloth, etc.

Medical Products: Nurse Suit, surgical Gown, Respirator, Gauze, etc.

Rapid Development of TANCOOBEL Fiber

Production in 2008: 15,500 tons
Production in 2009: 28,500 tons
Production in 2010: 35,000 tons

Export Proportion 31%
Europe 27.56% America 15.77%
S. Korea & Japan 34.40%
India & Pakistan 21.20% Other Countries 1.07%
Exported Products Proportion
Woven products: 78.46% Knitted Products: 21.54%

Domestic Sales 69%
Woven products: 38.9%
Knitted Products: 61.1%

Terminal Market

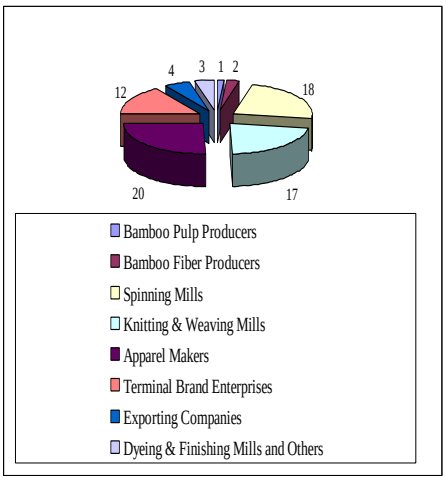
Hosiery & Underwear	54.5%
Home Textiles	34.9%
Leisure Apparel	10.6%

TANBOOCEL™

Tanboocel Industry Federation

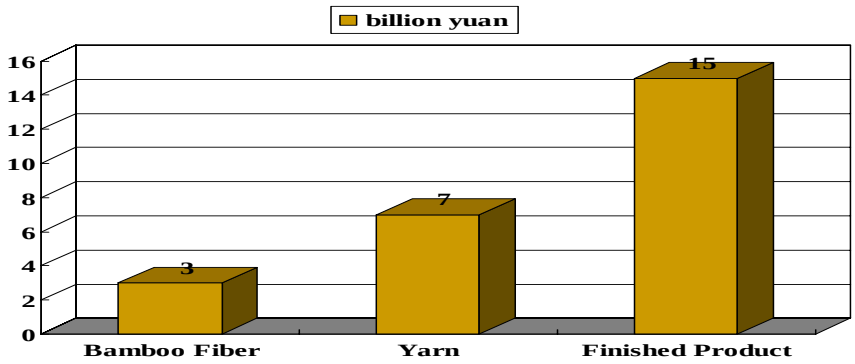
Tanboocel Industry Federation (TIF), a social economic organization with Tanboocel fiber industry chain as link, with information sharing & resource integration and exploit as measure, and with promoting Tanboocel fiber development as purpose, is spontaneously founded by 60 enterprises including Hebei Jigao Chemical Fibre. It is established in Hangzhou November, 2005, and the members in TIF covers all the sectors of the whole industry, including the initial feedstock processing and the final apparel manufacturing, as well as brand franchise sale.

Members of Tanboocel Industry Federation



Tanboocel Industry Federation now has 78 members, including 3 bamboo pulp and fiber producers, 18 yarn spinning mills, 17 weaving or knitting mills, 20 end-product makers, 12 terminal brand enterprises, 4 exporting companies, 3 dyeing & finishing mills and 1 testing institute.

Economic Benefits Achieved by Tanboocel Industry



In 2006-2010, total output of bamboo viscose fibers reached 140 kt, and the economic benefits from the fibers amounted to 3 billion yuan, while those from spun yarns summed 7 billion yuan, with finished products valued at 15 billion yuan, which brought huge economic effectiveness to the society.

Tanboocel Industry Saves Large Amounts of Agricultural Acreage.

According to statistics, to produce one-ton cotton needs 10 *mu*, so based on the substitution between one-ton bamboo fiber and one-ton cotton, the production of bamboo fiber in China has saved plough resources of 1.4 million *mu*, which means peasants can reap more grains of 1.4 million tons.

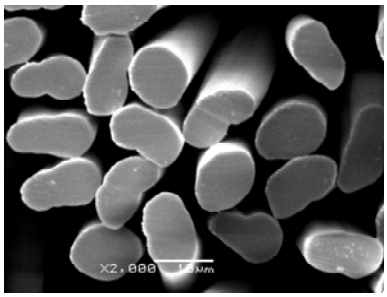
Tanboocel Industry Increases Local Peasants' Income.

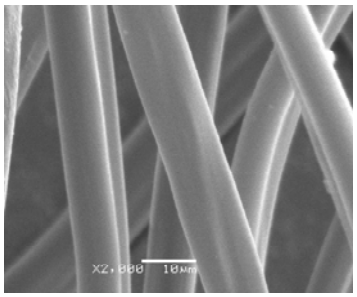
According to statistics, in 1999-2010, Hebei Jigao Chemical Fibre has totally produced bamboo fiber of 140 kt, and used bamboo wood of about 1.2 million tons in all, which has pushed bamboo wood prices from 200 yuan/ton to current 500 yuan/ton. Only this movement has made local peasants' income increase by 400 million yuan and bamboo forest areas expand by 1 million hectares.

Tanboocel Fiber Fits Low-Carbon Economy.

To produce a 400-gram polyester-fiber-based pant will consume energy of about 200 KWH, which equals to the release of carbon dioxide of 47 kg, 116 times heavier than itself. Each hectare bamboo forest can absorb carbon dioxide of 20-40 tons, and release oxygen of 15-20 tons. Each mu bamboo forest can produce bamboo wood of 3.5-4 tons, which can make 500-kg Tanboocel fiber, with total electricity consumption of 600 KWH (each KWH is understood to create 0.637-kg carbon dioxide), equaling to 0.4-ton carbon dioxide, which is far below the amount that the bamboo forest can absorb.

Tanboocel HWM Fiber



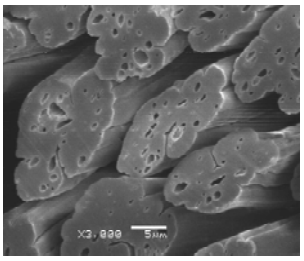


Physical & Chemical Specifications of the Fiber

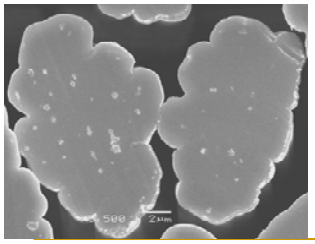
Dry Tenacity: 3.2-3.5 cN/dtex

Wet Tenacity: 2.5-2.8 cN/dtex

Functional Products of Tanboocel Fiber



Intelligent Thermoregulation Fiber: It's designed to combine the phase-transformation material and Tanboocel fiber production technology, with two-way temperature regulation through heat storage and release, which makes it a kind of textile feedstock with good performance and wide applications.



White Bamboo Charcoal Negative-Oxide-Ion Fiber: Use micro-nanometer-grade white bamboo charcoal powder as functional additives, and embed it into the interior of the fiber via blending, which endows the fiber with strong capability to send far infrared ray, release negative oxide ions and adsorb.

The Fifth Element in Textile Industry

With the development of industrialization, marketization, quality improvement, differentiation, functionalization and branding, Tanboocel fiber is widely used in the fields such as towel, apparel, bedding, hosiery, knitted underwear, etc. As consumers have deep emotion towards bamboo culture, always associate panda with bamboo and prefer the irreplaceable performance of comfortableness etc. of bamboo fiber, Tanboocel fiber is fashionable both at home and abroad, which entitles it 'the fifth element' in textile industry following 'cotton, wool, silk and hemp'.

The 12th Five-year Plan of Tanboocel Fiber

To realize the rapid development, scale production and integrated structure of Bamboo Fiber Industry in China.

Rapid Development

In 2011-2013, capacities of fine-denier Tanboocel fiber, functional & colored Tanboocel fiber, high-tenacity Tanboocel fiber and Tanboocel filament yarn reach 20 kt/yr, 20 kt/yr, 10 kt/yr and 20 kt/yr respectively.

In 2014-2015, capacities of fine-denier Tanboocel fiber, functional & colored Tanboocel fiber, high-tenacity Tanboocel fiber and Tanboocel filament yarn reach 50 kt/yr, 30 kt/yr, 30 kt/yr and 20 kt/yr respectively.

Capacities of functional & colored Tanboocel fiber, high-tenacity Tanboocel fiber, Tanboocel filament yarn and regular fibers reach 30 kt/yr, 30 kt/yr, 20 kt/yr and 170 kt/yr respectively.

By the end of 12th 'Five-year Plan' period, capacity of Tanboocel fiber will total 250 kt/yr in China, hereinto, 65% of the total capacity for apparels; 30% for home textiles; 5% for industrial use, with the number of federation members up to 100.

The 12th Five-year Plan of Tanboocel Fiber

To realize the rapid development, scale production and integrated structure of Bamboo Fiber Industry in China.

Scale Production

- In 2011, Jilin Group will achieve large-scale production of bamboo pulp-based filament yarn.
- Since Mar 2011, Taiwan has achieved scale production of high-tenacity Tanboocel Fiber.
- From May 2011, Tanboocel thermoregulation fiber, flame-retardant fiber and negative oxygen ion fiber will reach scale production.
- In Jun 2011, Tanboocel dope-dyed fiber will reach scale production.
- By 2015, functionalization and serialization of Tanboocel fiber will arrive.

The 12th Five-year Plan of Tanboocel Fiber

To realize the rapid development, scale production and integrated structure of Bamboo Fiber Industry in China.

Integrated Structure

- In Jan 2011, Anhui Tanboocel Fiber Site officially started operation.
- In Mar 2011, Taiwan Tanboocel High-tenacity Fiber Site started operation.
- Sichuan Tanboocel is the first base to produce fine bamboo pulps which are used to produce high tenacity bamboo staple fiber and filament yarn. The bamboo pulps from Yunnan are used to make high quality knitted underwear, while Fujian province acts as an important role of raw material supplement.
- In 2015, the common development of Hebei, Jilin, Shandong, Sichuan, Hunan, Anhui, Fujian, Yunnan, etc., will be achieved.

Sanama Fiber

Plenty Hemp Resources

Jute

Flax

Marijuana

Sisal

Kenaf

Ramie

Hemp Culture with Long History

Origin of China Textile Industry & Long-term Feedstock for Apparel

Cereal, Millet, Rice, Beans, Hemp, Wheat

Long History

Embodiment of Dignity & Holiness

Resistance to All Kinds of Poisonous Substances

Witness of Life

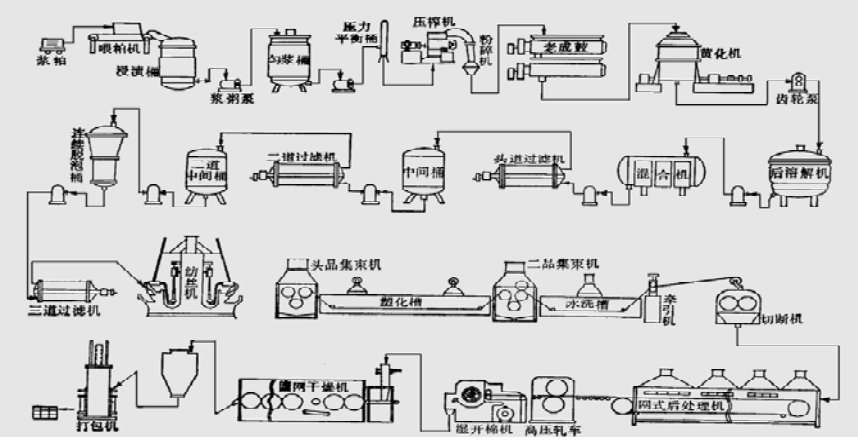
Production Process of Sanama Fiber

Hemp

Hemp Pulp

Sanama Fiber

Flow Chart of Sanama Fiber Production Process



Invention Patent of Sanama Fiber

- **Processing Method for Hemp Pulp and Functional Fiber Patent No.: 200410004397.8**
- **Processing Method for Hemp Viscose Filament Yarn**

  Patent No.: 200410046451.5

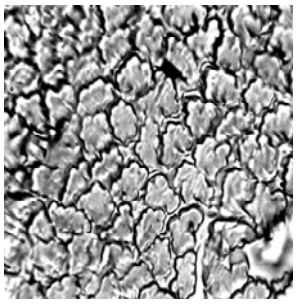

发明专利证书

Specifications of Sanama Fiber

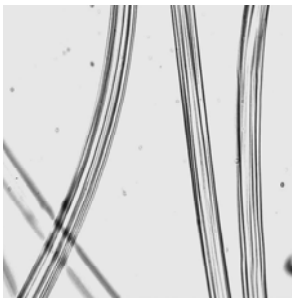
Item	Result	Item	Result
Dry Tenacity at Break cN/dtex	2.53	Overcut Fiber mg/100g	2.6
Wet Tenacity at Break cN/dtex	1.36	Residual Sulphur mg/100g	11.5
Elongation at Break %	25.1	Defect mg/100g	3.9
Deviation of Linear Density %	-3.59	Oil-stained Yellow Fiber mg/100g	0
Length Deviation %	1.1	Coefficient Variation of Dry Tenacity %	16.04
Overlength Rate %	0.4	Whiteness %	72.4

Morphological Structure of Sanama Fiber

Photograph (350 times)



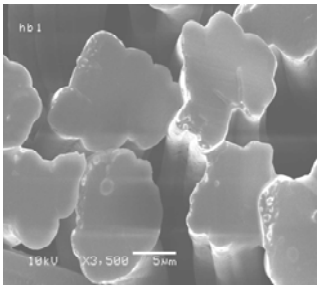
Cross Section



Lengthwise Section

Morphological Structure of Sanama Fiber

Photograph (3500 times)



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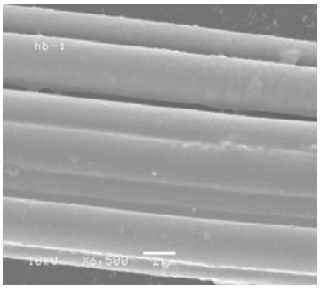


Lengthwise Section

Tenacity & Elongation of Sanama Fiber

Item	Sanama Fiber	Conventional VSF
Dry Tenacity at Break cN/dtex	2.59	2.52
Wet Tenacity at Break cN/dtex	1.55	1.47
Dry Elongation at Break %	25.21	12.10
Wet Elongation at Break %	27.13	19.29
Linear Density dtex	1.67	1.67

Dry/wet elongation at break of Sanama fiber is higher than that of conventional viscose fiber, especially for the dry elongation at break at 25.21% which shows large initial modulus and good abrasive resistance of hemp-pulp-based fiber, with strong bending-resistant deformability.

Friction Performance of Sanama Fiber

Type	Kinetic Fiction	Static Fiction	Difference
Between Sanama Fibers	0.1347	0.1962	-0.0615
Between Viscose Fibers	0.1933	0.3628	-0.1695
Difference	-0.0586	-0.1666	

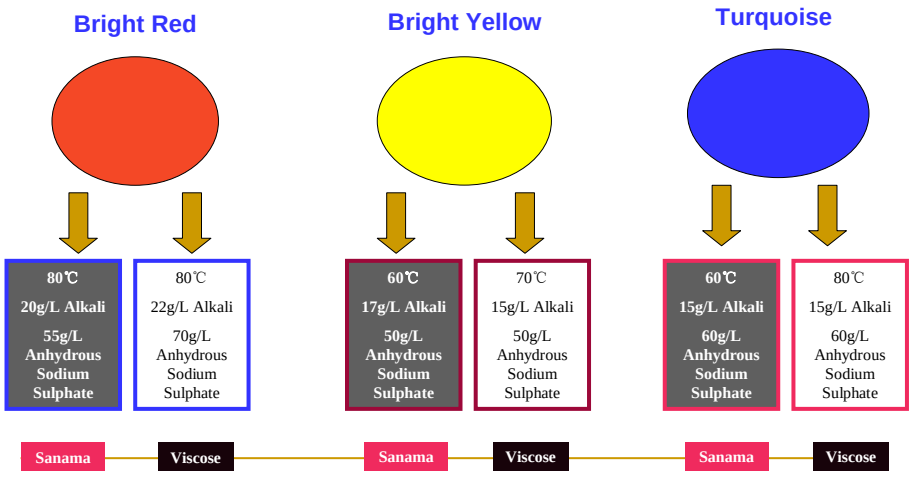
Sanama fiber not only has relatively low kinetic and static fiction coefficients, but also sees small difference between the two coefficients, only at 0.0615, which indicates that Sanama fiber and the products made from it feel soft and smooth.

Water-absorption & Electricity-conduction of Sanama Fiber

Fiber	Moisture Regain /%	Mass Specific Resistance /Ω*g/cm^2
Viscose	10.98	1.20×10^7
Sanama	15.15	1.18×10^7
Difference	4.17	-0.02×10^7

The mass specific resistance of Sanama fiber is lower than that of conventional viscose fiber, which means hemp-pulp-based fiber has better electricity conduction than conventional ones and thus owns good antistatic behavior.

Best Dyeing Process Technology for Sanama Fiber



Mite-Resistant Function of Sanama Fiber

Product Certificate of Sanama Fiber

CTTC

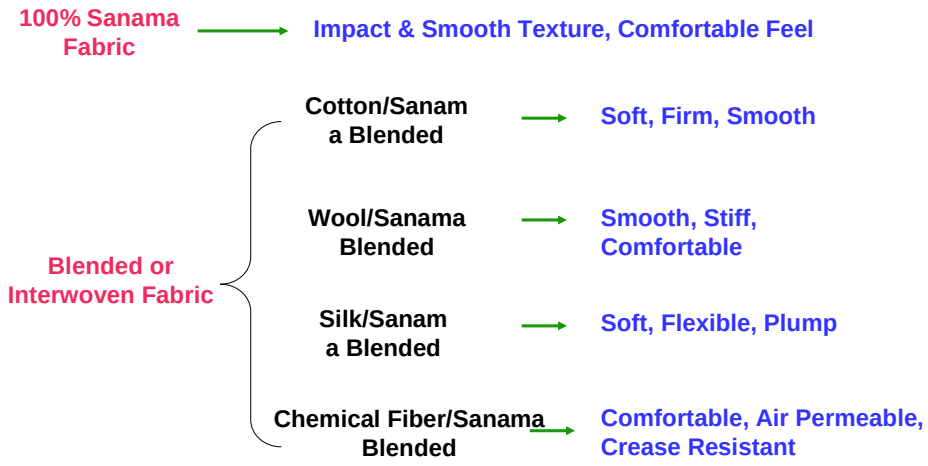
产品认证证书

Product Certificate

Characteristics of Sanama Fiber

- Good Moisture Permeability
- Stable Bacteria Resistance
- Fine Spinnability
- Natural Mite Resistance
- Excellent Dyeability & Fastness
- Comfortable to Skin

Application of Sanama Fiber



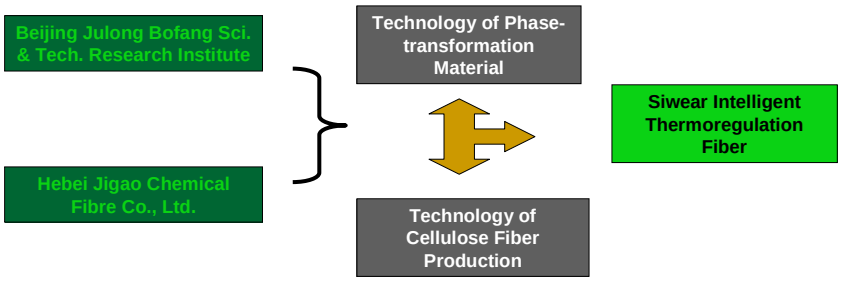
New-type Bio-Fiber —Sanama Fiber

- The Fiber that Presents Family Love
- The Fiber that Helps Health Care
- The Fiber that Has High Grade

Siwear™——

Intelligent Thermoregulation Fiber

Definition of Intelligent Thermoregulation Fiber



Siwear Intelligent Thermoregulation Fiber is **a new-type fiber**. It has good moisture absorption and strong adaptability, which makes it able to change in line with external environment and **automatically regulate the temperature** in a certain range. So, it is more comfortable than other conventional fabrics in the view of helping wearers **feel that they live under constant temperature**.

Production Mode of Intelligent Thermoregulation Fiber

Coating

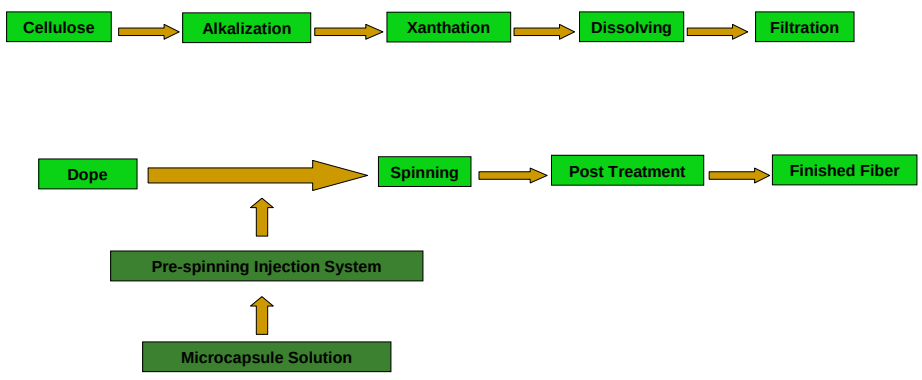
Coat the substance that contains thermosensitive phase-transformation materials on the surface of the fabric, namely external coating process.

Embedding

Embed the microcapsule into the interior of the fiber, which makes phase-transformation-material-based microcapsule embedded in the fiber.

Siwear Intelligent Thermoregulation Fiber has adopted advanced embedding technology.

Production Process of Intelligent Thermoregulation Fiber

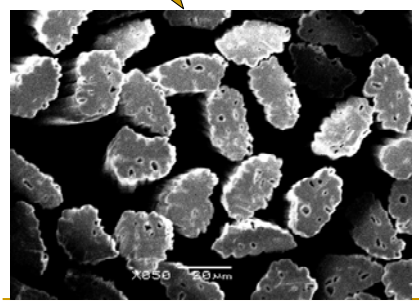


Pre-spinning injection system can improve the quality of functional fiber.

Cross Section of Intelligent Thermoregulation Fiber

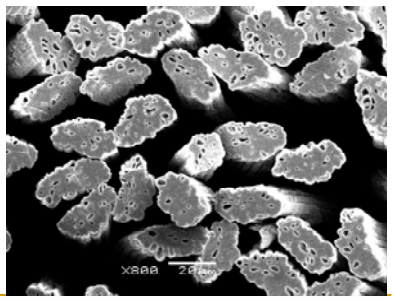
Enthalpy of Phase-transformation 5.3kJ/kg

1.67detx*38mm



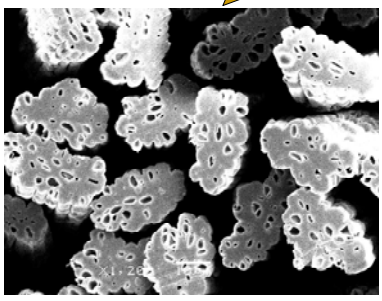
Enthalpy of Phase-transformation 11.0kJ/kg

3.33detx*51mm

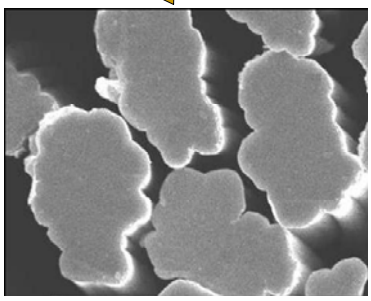


Cross Section of Intelligent Thermoregulation Fiber

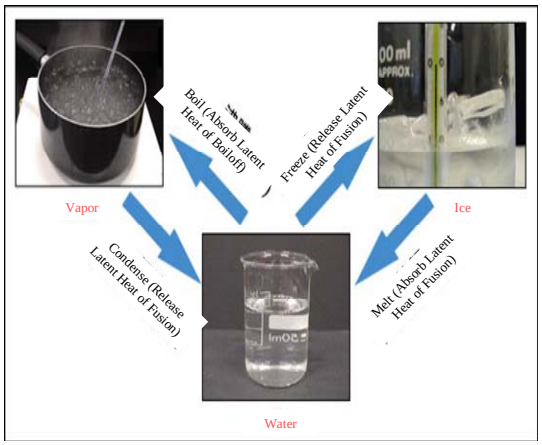
Enthalpy of Phase-transformation
15.2kJ/kg
5.56detx*65mm Siwear Fiber



Enthalpy of Phase-transformation
0kJ/kg
1.67detx*38mm Viscose Fiber



Thermoregulation Principle of Intelligent Thermoregulation Fiber



All the substances in the nature exist in the form of solid state, liquid state or gas state. Under certain circumstance, the substance can transform among the three states, which is understood as phase transformation. During the process, heat absorption or release is always followed.

Intelligent Thermoregulation Fiber is produced in the view of such principle.

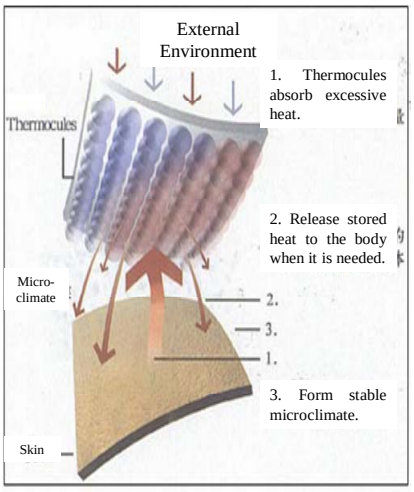
What is phase transformation?

Thermoregulation Principle of Intelligent Thermoregulation Fiber

The **Siwear fiber** owns the good thermoregulation function via adding phase-transformation materials into spinning dope, which embeds the materials into the fiber.

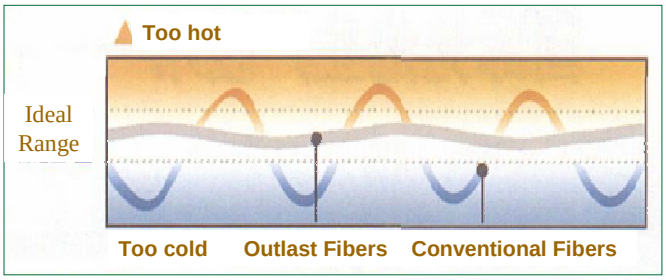
When **outside temperature increases**, the phase-transformation materials absorb the heat and transform from solid state to liquid state, which **reduces** shell temperature.

On the other hand, it will prevent human body from releasing heat to the surroundings when the outside temperature decreases as phase-transformation materials release the heat and transform from liquid state to solid state. Thus, human body **is maintained** at normal temperature, and then **feels comfortable**.



Thermoregulation Principle of Intelligent Thermoregulation Fiber

- **Intelligent thermoregulation fiber initiatively adjusts human body surrounding temperature to provide favorable microclimate for the human body.**
- **The fiber is also able to be used repeatedly when the temperature is changing dramatically.**



Specs of Intelligent Thermoregulation Fiber

- Denier: 1.5D-5.0D
- Length: 38mm-51mm
- Available specs:
  - 1.5D*38mm
  - 2.0D*51mm
  - 5.0D*51mm

Physical Specifications of the Thermoregulation Fiber

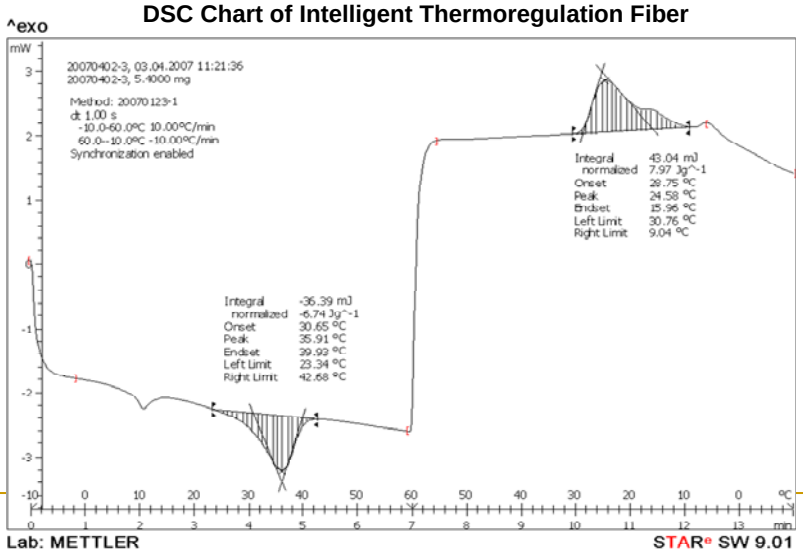
Item	Cotton-type Fiber	Medium-length Fiber
Dry Tenacity at Break cN/dtex	2.0	1.8
Wet Tenacity at Break cN/dtex	0.9	0.8
Dry Elongation at Break %	23.5	19.9
Coefficient Variation of Dry Tenacity (CV)%	14.57	12.95
Linear Density dtex	1.70	2.67

Functional Specifications of the Thermoregulation Fiber

Sample Code	Melting Temperature℃	Melting Enthalpy J/g	Solidification Temperature ℃	Solidification Enthalpy J/g
2010-05-20-11	31.64	5.58	15.02	5.63
2010-05-20-25	31.48	5.66	15.35	5.03
2010-05-20-54	31.99	4.35	15.35	3.62
2010-05-20-84	31.33	6.08	16.18	3.55
2010-05-20-111	31.63	6.34	15.36	6.48
2010-05-20-141	32.64	6.77	15.03	6.11
2010-05-20-154	32.46	8.45	14.87	7.98

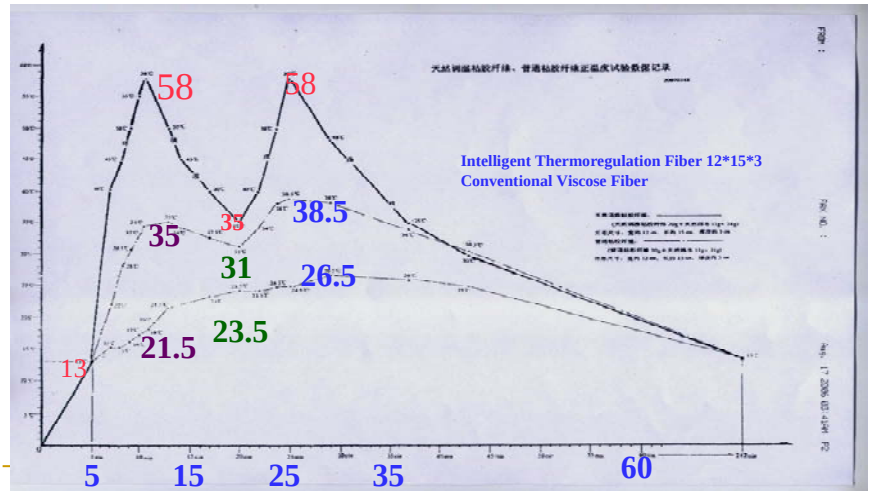
Function Test of Intelligent Thermoregulation Fiber

DSC Chart of Intelligent Thermoregulation Fiber



Contrast Test of Intelligent Thermoregulation Fiber's Thermoregulation Effect

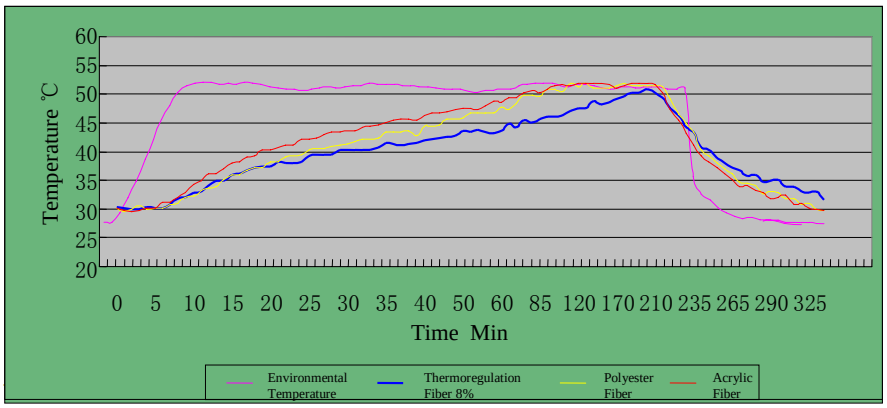
Contrast Test with Conventional Viscose Fiber



Contrast Test of Intelligent Thermoregulation Fiber's Thermoregulation Effect

Intelligent Thermoregulation Fiber, Moisture Wicking Polyester Fiber, Anti-pilling Acrylic Fiber

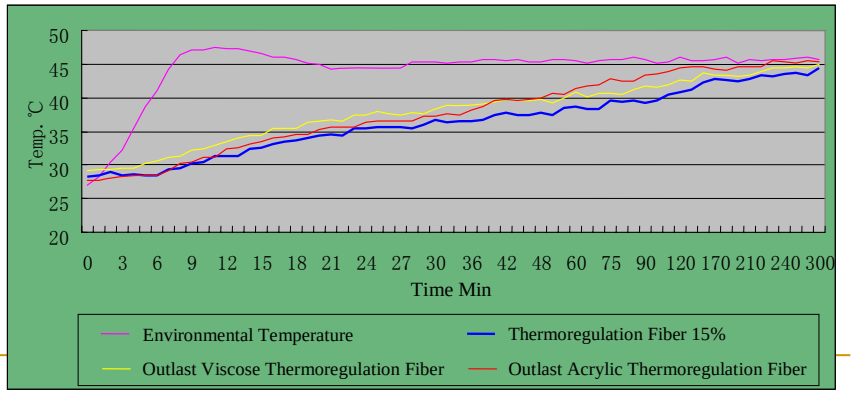
- **Temperature inside the cloth made from thermoregulation fiber is obviously lower than that inside cloth made from polyester fiber and acrylic fiber, with the largest gap of 4℃. In the view of the time to reach 50℃, thermoregulation fiber lags behind polyester fiber and acrylic fiber for about one hour and a half.**



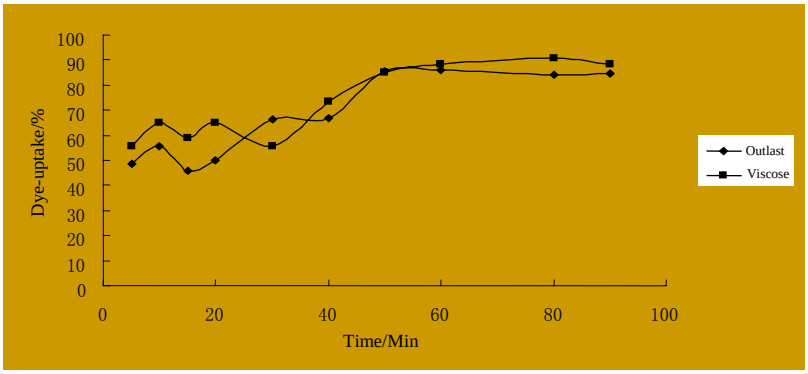
Contrast Test of Intelligent Thermoregulation Fiber's Thermoregulation Effect

Siwear Fiber, Imported Thermoregulation Fiber, Imported Acrylic Thermoregulation Fiber

- **Temp. up rate of intelligent thermoregulation fiber is always lower than that of imported thermoregulation fiber and acrylic fiber. In the first 40 minutes, there is a larger temperature gap between intelligent thermoregulation fiber and imported thermoregulation fiber, while later, the larger temperature gap is seen between intelligent thermoregulation fiber and imported acrylic thermoregulation fiber. The largest temperature gaps of the two cases are both 2℃.**



Dyeing Property of Intelligent Thermoregulation Fiber



- Uptake Rate Curve of Reactive Scarlet B-3GTM
- Under 65℃, 50g/L Anhydrous Sodium Sulphate and 20g/L Soda Ash

Dyeing Property of Intelligent Thermoregulation Fiber

- The result shows that during the same period, dye-uptake of outlast fiber is not so high as viscose fiber, as thermoregulation fiber has more phase-transformation-material-based microcapsules.
- The most favorable production conditions are acquired via changing the dyeing conditions (for example, salinity, alkalinity, temperature) to research their influence on dyeing process and the function of the fiber.

Application of Intelligent Thermoregulation Fiber

- It can be blended with cotton, acrylic fiber, polyester fiber, aramid fiber and so on, and it can also be embedded into the interlining of the fabric.
- It can be used to make undervest, knitted garments, ladies' garments (dress, etc.), shirts, pants, some specialty garments (space suits for astronauts, work clothes for researchers working in Antarctic Pole, etc.)
- As for home textiles, it can be used to make bedspread, sheet, mattress and blanket.

Prospect of Intelligent Thermoregulation Fiber

- Intelligent thermoregulation fiber developed by Hebei Jigao Chemical Fibre Co., Ltd has acquired three national patents of invention, and has passed the scientific and technical appraisement by China National Textile And Apparel Council in 2007. The company is the first enterprise to develop intelligent thermoregulation fiber in China, which fills the blank space of this field.
- In 2008, it was listed in one of the key projects to be promoted by China textile industry.
- In 2009, it passed the appraisal of scientific and technological achievements in Shijiazhuang, and was honored the third prize of science and technology advancement award by China National Textile And Apparel Council.
- In 2010, the sales volume of Siwear thermoregulation fiber is over 150 tons, while in 2011, the production scale will reach 500 tons.
- In November 2010, the company successfully replaced conventional cotton-type fiber with Tanboocel fiber, and combined flexibleness & smoothness of Tanboocel fiber and the function of intelligent thermoregulation together, which at last turned out Tanboocel thermoregulation fiber.

Siwear ™——

Intelligent Thermoregulation Fiber

To provide longer 'Spring' for our customers.

Conclusion

Tanboocel fiber, Sanama fiber and Siwear fiber all fit the development guide of feedstock diversification, product functionalization and technical advancement of China textile industry. They also fit the strategic planning of China textile industry and enhance the competitiveness of Chinese textile products in the international market. So, let's strive hand-in-hand to boost the rapid development of cellulose fiber and make more contribution to the prosperity of China textile industry.

www.tzcylm.com **Tanboocel Industry Federation**

Thank You!

May 2011