

2021/2022  
中国纱线流行趋势  
CHINA YARNS  
FASHION TRENDS

绿色生态  
GREEN ECOLOGY

功能赋予  
FUNCTION ENDOWING

性能优化  
PERFORMANCE OPTIMIZATION

2021年是实施“十四五”规划的开局之年，全面建设社会主义现代化国家新征程开启之年。历经极不平凡的2020年，我国纺织行业协同创新、融通发展。自2019年，中国棉纺织行业协会（简称“中棉行协”）启动首届中国纱线流行趋势研究与发布。在2020年第二届的纱线流行趋势研究与探讨中，工作组延续“科技、时尚、绿色”的定位要求，推选出了一系列具有市场代表性、技术创新性的纱线新产品，推进纱线品牌建设，共襄产业未来。

纱线作为原料纤维至面料及服装产品的中间环节，除了提供纤维以丰富形式的组合方式，也在其加工工艺中赋予服装面料以差异化的触觉、视觉、功能以及整体风格可能。本次活动收集的创新产品，从一定程度反馈市场情况。经由中棉行协组织行业协会、院校和企业专家，以“缤纷与品质”为本次评选主题，从产品性能、功能赋加、市场需求及视觉时尚等多方面对产品进行综合考量，评选出具有市场代表性、满足消费者及产业需求、引领纱线生产趋势的系列产品。

所归纳的2021/2022中国纱线流行趋势产品主要分为绿色生态、功能赋予、性能优化三大类。其中，各类别下又分别尝试从纱线产品的原料、工艺、功能及品质、时尚属性等，对收集产品进行系列划分和解读。

## 绿色生态

通过绿色纤维、革新的纺纱工艺以及绿色处理，分别从纺纱原料来源、高效工艺流程设计及绿色生产助剂等角度，涵盖纺纱生产的全流程，实现绿色、生态的生产理念。绿色纤维产品如再生纤维素纤维为主（莱赛尔、粘胶等）的色纺纱产品、再生合成纤维（如聚酯）原液染色纱、以及再生棉（回收旧衣物等），实现多种绿色原料的循环利用；绿色纺纱工艺方面，如针对亚麻纤维的棉纺短流程工艺、针对回收落棉进行的赛络纺形式的粗纱工序改装，从加工流程方面实现可循环与节能等；在绿色处理方面，包括环保植物染料的应用、全流程无荧光剂的精细加工流程等。

The year 2021 is the first year for the implementation of the "14th Five-Year Plan", and for the new journey of building a socialist modernized country in all respects. Throughout an extremely extraordinary year of 2020, China's textile industry has achieved cooperative innovation and integrated development. In 2019, China Cotton Textile Association ("CCTA") has initiated the first session of the China Yarns Fashion Trends 2021/2022 Research and Release. During the second session of the China Yarns Fashion Trends 2021/2022 Research and Discussion in 2020, the working group selected a series of new yarn products characterized by market representation and technological innovation based on the positioning requirements of "science and technology, fashion and green" so as to promote the building of yarn brand and make contribution to the future of the industry.

As an intermediate link from raw fiber to fabrics and garment products, yarn gives garment fabrics the possibility of different touch, vision, function and the overall style in its processing technology in addition to providing a rich combination of fibers. In this activity, the innovative products reflects the market situation to a certain extent. Industry associations, colleges and business experts, under the organization of CCTA, selected a series of products that are representative of the market, meet the demands of consumers and industries and lead the yarn production trend by focusing on the theme of "Colorful and Quality" and comprehensively considering the product performance, function addition, market demand and visual fashion.

The selected products in 2021/2022 China Yarns Fashion Trends are mainly classified into green ecology, function endowing and performance optimization. Under each category as mentioned above, the collected products are classified in series and interpreted from the raw material, technology, function, quality and fashion attribute of the yarn products.

## Green ecology

Relying on green fiber, innovative yarn technology, and green treatment, the whole process of yarn production is covered from the perspectives of yarn raw material source, efficient technological process design and green production auxiliary agent, and the green and ecological production concept is realized. The green fiber products, such as dyed yarn products based on regenerated cellulose fiber (Lyocell, viscose, etc.), dyed yarn based on regenerated synthetic colorfiber (such as polyester), and regenerated cotton (recycled clothes, etc.), realize the recycling of various green raw materials. The green yarn technology, such as cotton yarn short-flow technology for flax fiber, and roving flow modification in the form of siro yarn for recycled noil, realizes the recycling and energy saving from processing flow, etc. The green treatment covers the application of environment-friendly vegetable dyes, and the fine processing flow in the whole process without fluorescent agent.

## 功能赋予

2020年新冠疫情肆虐，后疫情时代中的消费者更加关注纺织品的舒适感、健康防护性及安全性，以再生纤维素纤维为基础的抗菌功能性纺织品正迎来新的市场机遇。舒适性产品主要包括如下三大类：热湿舒适性以多种天然纤维、功能性化纤以及差异化纱线结构等丰富手段实现；压感舒适性则通过弹性纤维成分的优化配合，此外可染丙纶轻巧，速干，防寒保暖和纯天然的抑菌，为户外运动产品增加了新的原料应用方向；触感舒适产品设计大量高端产品，应用羊绒、绢丝等高品质天然纤维混纺实现纱线体感功能的最优化。大健康背景下的安全防护功能全部集中于抗菌，包括天然抗菌纤维，如麻纤维，天然纤维功能整理，以及功能性抗菌化纤等。

## 性能优化

在纺纱生产中，原料、纺纱方式及现有加工装备往往会为纱线带来不同的特性及优劣势。为创造及满足更为丰富的消费及使用需求，目前产品展现出三个规律和趋势：首先是突破纱线结构限制，例如针对花式纱在使用耐久性、机械性能存在的问题，设计生产高品质花式纱；此外，是突破纱线采用原料对产品特性的限制，如突破传统纯棉纱外观、手感，利用工艺改良制备低捻超柔纯棉纱等，以及开发锦纶纤维涡流纺纱线，弥补涤纶的吸湿和弹性不足，拓宽市场应用；最后还包括突破加工装备限制，例如开发高支高品质转杯纺纱线、转杯纺纯纺莱赛尔纤维、木棉混纺纱等。

纱线流行趋势特点如下：精品化纯棉纱，如低捻、中空结构、持久抗菌的纯棉纱；多元复合是整体趋势，如绿色再生纤维素纤维与功能性纤维、高品质天然纤维混纺实现功能复合；新型纺纱技术的广泛应用，技术改造创新带来的品种适应性的扩展和优化；纱线时尚领域的拓展，花式纱、色纺纱的应用。希望通过中国纱线流行趋势的延续与发布，使纺纱作为纤维原料的载体，搭建与纺织产品之间的桥梁，通过向差异化材料、加工技术及结构设计，为纺织品提供更多的可能，并形成具有自主设计能力与风格的系列产品及生产企业。



## Function endowing

Due to the raging of COVID-19 epidemic in 2020, consumers in the post-epidemic era attached more attention to the comfort, health protection and safety of textiles. Antibacterial functional textiles based on regenerated cellulose fibers are embracing new market opportunities. Comfort products mainly include the following three categories: The thermal-moisture comfort is realized by various means such as natural fibers, functional chemical fibers and differentiated yarn structures. The pressure comfort is optimized by means of the elastic fiber composition; and, the dyeable polypropylene fiber, which is lightweight, quick-drying, cold-proof, warm-keeping, pure natural and antibacterial, adds a new direction of raw material application for outdoor sports products. The touch comfort is designed for a large number of high-end products, and the high-quality natural fibers such as cashmere and spun silk are blended to realize the optimization of yarn somatosensory function. Under the healthy environment, all safety protection functions focus on antibacteria (including natural antibacterial fibers, such as fibrilia), functional finishing of natural fibers, and antibacterial functional chemical fibers.

## Performance optimization

In terms of yarn production, raw materials, yarn production methods and existing processing equipment often give yarns different characteristics and advantages & disadvantages. In order to create and meet more abundant consumption and use demands, the current products present three laws and trends: 1) Breaking through the limitation of yarn structure. For example, high-quality fancy yarn is designed and produced by considering the durability and mechanical properties of fancy yarn. 2) Breaking through the limitation on yarn product characteristics due to the application of raw materials. For example, the low-twist pure cotton yarn with super-soft touch is prepared by breaking through the appearance and touch of traditional pure cotton yarn and relying on technology improvement, and the nylon fiber vortex yarn is developed so as to make up for the lack of moisture absorption and elasticity of polyester and broaden the market application. 3) Breaking through the limitation of processing equipment. For example, high-count and high-quality rotor yarn, Lyocell fiber, and kapok blended yarn are developed.

The characteristics of yarns fashion trend are as follows: 1) High-quality pure cotton yarn, such as low-twist, hollow-structured, durable and antibacterial pure cotton yarn. 2) Diversification, which is the overall trend, such as blending of the green regenerated cellulose fiber with functional fiber and high-quality natural fiber to realize functional compounding. 3) Expansion and optimization of variety adaptability attributable to the wide application of new yarn technology and the technological transformation and innovation. 4) Expansion of yarns fashion field, and application of fancy yarn and dyed yarn. It is expected to build a bridge with textile products through the continuation and release of China Yarns Fashion Trends and using the yarn as the carrier of fiber raw materials, provide more possibilities for textiles through differentiated materials, processing technology and structural design, and form a series of products and manufacturers with independent design capability and style.

## 再生聚酯喷气涡流纺纱

### Recycled polyester air-jet vortex spinning



**产品规格：**100% 再生聚酯纤维（涤纶）

**关键词：**100% 再生涤纶 + 短流程

**推荐理由：**本着“绿色、科技、时尚”的产品理念，该产品使用的是可再生涤纶纤维，绿色、环保，对环境污染小。生产期间主要解决了再生涤纶流纺纺纱的工艺难点，实现涡流纺再生涤纶的批量生产，显著提升了再生涤纶产品的抗起毛起球性能，扩大了产品的应用范围。

**适用范围：**运动面料

**代表企业：**德州华源生态科技有限公司（品牌——锦密纺）

**产学研：**与国内高校、科研机构展开了广泛的技术合作，从建厂初与本地高校德州学院开展合作，成为德州学院的实习示范基地，到现在与外省高校东华大学、西安工程大学、江南大学等建立长期稳定的技术合作关系，形成产学研一体化。聘请资深教授、专家为公司技术顾问，参与公司科技技术项目的论证和前景谋划，提高公司核心竞争力。另外，先后与中国工程院院士姚穆达成合作意向，签订技术合作协议，并建立了技术合作平台—德州华源生态科技有限公司院士工作站。

**Product specification:** 100% recycled polyester fiber (polyester)

**Keywords:** 100% recycled polyester fiber + short process

**Recommendation reasons:** In the light of the product concept of "Green Development, Technology and Fashion", the product comprises recycled polyester fiber, which is sustainable, environmentally friendly and less polluting. During the production, the technical difficulties in recycled polyester vortex spinning have been basically solved, realizing quantity production of the recycled polyester yarn with vortex spinning process, significantly improving the anti-pilling performance of the recycled polyester products, and expanding the application range of products.

**Scope of application:** Sportswear fabric

**Representing enterprises:** Dezhou Huayuan Eco-technology Co., Ltd.; Brand – Jinmi Spinning

**Industry-university-research:** The Company has carried out extensive technical cooperation with domestic universities and scientific research institutions, from the cooperation with the local college, Dezhou University, at the initial stage of plant construction, becoming an internship demonstration base for Dezhou University, to the establishment of long-term and stable technical cooperative relationship with universities outside Shandong Province such as Donghua University, Xi'an Polytechnic University and Jiangnan University, forming an industry-university-research integration. The Company also employs senior professors and experts as technical consultants to participate in the demonstration and prospect planning of the Company's science and technology projects, aiming to improve its core competitiveness. In addition, it has successively reached cooperation intentions with Academician Yao Mu from Chinese Academy of Engineering, signed technical cooperation agreements, and established a technical cooperation platform-Academician Workstation of Dezhou Huayuan Eco-technology Co., Ltd.

## 再生纤维素纤维转杯色纺纱

### Recycled cellulose fiber rotor color-spun yarn



**产品规格：**100% 环保再生纤维素纤维（粘胶）

**关键词：**100% 粘胶 + 短流程 + 色纺

**推荐理由：**该纱线采用色纺纱技术，通过对色打样确定色泽，再在先进的转杯纺设备上通过混色、梳理、混并、成纱等工艺流程纺制而成，此方法符合国家绿色、生态环保可持续发展的要求。转杯纺环保粘胶色纺纱采用的原料是100%环保粘胶，环保粘胶源于树木，采用最可持续的木材资源以及生态环保的生产工艺，进行粘胶纤维生产。与传统粘胶相比可以显著降低排放和对水资源的影响。用该纱线制成的服装面料舒适有型，环保天然。面料的轻盈飘逸、光洁清爽、颜色亮丽等性能也都达到了无与伦比的品质，具有健康、环保的特点，符合大众消费需求。

**适用范围：**高档的针织面料用纱

**代表企业：**浙江湖州威达集团股份有限公司（品牌——威达、长欣）

**产学研：**公司先后与东华大学、浙江理工大学等纺织学院为技术后盾开展合作。为进一步加强企业技术创新能力，有效利用行业资源，公司积极开展同行业间合作创新活动。

**Product specification:** 100% environmentally-friendly recycled cellulose fiber (viscose)

**Keywords:** 100% viscose + short process + colored spinning

**Recommendation reasons:** Rotor-spinning environmentally-friendly viscose color-spun yarn is applied with color-spun technology, which is spun through first determining the color-by-color proofing, and then carrying out the technological processes such as color mixture, carding, blending and yarn forming in the advanced rotor-spinning equipment. This method meets the requirements of national green, ecological, environmentally-friendly and sustainable development. The raw material used in the rotor-spinning environmentally-friendly viscose color-spun yarn is 100% environmentally-friendly viscose, which is originated from trees, and the viscose fiber is manufactured by using the most sustainable wood and the ecological and environmentally-friendly production technology. Compared with traditional viscose, it can significantly reduce the emission and the impact on water resources. Clothing fabrics made of this yarn are comfortable, stylish, environmentally-friendly and natural. The fabric is incomparably light, clean, elegant, silky and bright in color, and has healthy and eco-friendly characteristics, which meets the needs of mass consumption.

**Scope of application:** High-end yarn for knitted fabrics

**Representing enterprises:** Zhejiang Huzhou Weida Group Co., Ltd; Brand - Weida, Changxin

**Industry-university-research:** The Company has cooperated with textile colleges in Donghua University, Zhejiang Sci-tech University, etc., as the technical support. In order to further strengthen the technological innovation capability of enterprises and make effective use of industry resources, the Company actively organizes cooperative innovation activities in the industry.

## 醋酸纤维混纺纱

### Cellulose acetate blended yarn

**产品规格:** 60% 天丝™ 莫代尔 40% Naia™ 醋酸纤维

**关键词:** 再生纤维素纤维

**推荐理由:** 针对醋酸短纤维的特性, 通过改造混开棉设备, 创新采用短流程清梳联和柔性生产工艺, 克服了因纤维强力低造成的纺纱困难, 减少了纤维损伤, 获得了较好的成纱质量; 根据醋酸纤维柔软速干、抗起球性好的特性, 将其与细旦莫代尔纤维进行混纺, 开发出了具有柔软舒适、吸湿速干、抗起毛起球功能的纱线, 满足了后道加工要求, 填补了市场空白。

**适用范围:** 家居服, 内衣等

**代表企业:** 山东联润新材料科技有限公司 (品牌——联润)

**产学研:** 与国家纺织产品开发中心共建“纺织新材料产品创新中心”和“纺织面料设计人才培训基地”, 与天津工业大学共建“纺织新材料、新技术应用研究院”和“大学生实践基地”, 与东华大学、青岛大学等国内纺织类高校和科研院所深入交流合作, 柔性引进高层次人才担任企业技术顾问, 开展项目研究。此外, 与以品牌为中心的优势产业链合作, 在产品开发、市场营销上, 与奥地利兰精、美国伊士曼等国际知名纤维品牌形成战略合作。

**Product specification:** 60% Tencel™ Modal 40% Naia™ Cellulose acetate

**Keywords:** Recycled cellulose fiber

**Recommendation reasons:** Based on the characteristics of acetate staple fiber, the spinning difficulty caused by low fiber strength is overcome by reforming the blending equipment, and adopting innovatively the short-process blowing-carding and flexible production process, reducing fiber damage and obtaining relatively better yarn quality; based on the characteristics of softness, quick-drying and good pilling resistance of acetate fiber, it is spun by blending microdenier Modal fiber, and then a kind of yarn is successively developed with the characteristics of softness, moisture-absorption, quick-drying and good pilling resistance, meeting the requirements of the following processing and fill the market gap.

**Scope of application:** Loungewear, underwear, etc.

**Representing enterprises:** Shandong Long Run Textile Co., Ltd.; Brand - Long Run

**Industry-university-research:** The Company has established the “Textile New Material Product Innovation Center” and “Textile Fabric Design Talent Training Base” with the National Textile Product Development Base, and built “Textile New Material and New Technology Application Research Institute” and “College Students Practical Training Base” with Tiangong University, and has conducted in-depth exchanges and cooperation with domestic textile-competitive universities and research institutes such as Donghua University and Qingdao University, and flexibly introduced high-level talents to serve as enterprise technical consultants to carry out project research. In addition, it cooperates with the advantageous industrial chain centered on brand, and forms strategic cooperation with international famous fiber brands such as Austrian Lenzing and American Eastman in product development and marketing.

#### 指标 Indicators

(1) Fabric Moisture Management Properties As Received  
洗涤前织物吸湿与导湿性能

Performance 性能	Property Indices 性能指标	Test Result 测试结果		Requirement 要求	Conclusion 结论判定	
		Average 平均值	Grade 等级			
Absorption-Quick Dry 吸湿速干性	- Wetting Time - 润湿时间 T(s)	- Top Surface - 顶表面	4.1 s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	4.3 s	4级	≥ 3级	Pass 符合
	- Absorption Rate - 吸水速率 A(1%/s)	- Top Surface - 顶表面	67.3%/s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	62.6%/s	4级	≥ 3级	Pass 符合
	- Maximum Wetted Radius - 最大润湿半径 R(mm)	- Top Surface - 顶表面	20 mm	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	2.7 mm/s	3级	≥ 3级	Pass 符合
Absorption-Sweat Releasing 吸湿排汗性	- Wetting Time - 润湿时间 T(s)	- Top Surface - 顶表面	4.3 s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	4.3 s	4级	≥ 3级	Pass 符合
	- Absorption Rate - 吸水速率 A(1%/s)	- Top Surface - 顶表面	62.6%/s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	62.6%/s	4级	≥ 3级	Pass 符合
- One-way Transport Index - 单向导湿指数 O		-69.8	2级	≥ 3级	Fail 不符合	

(2) Fabric Moisture Management Properties After Wash  
洗涤后织物吸湿与导湿性能

Washing Condition: GB/T 8629-2017, Test Program 4N, 5 Cycles, Line Dry  
洗涤条件: GB/T 8629-2017, 4N测试程序, 洗涤5次, 悬挂晾干

Performance 性能	Property Indices 性能指标	Test Result 测试结果		Requirement 要求	Conclusion 结论判定	
		Average 平均值	Grade 等级			
Absorption-Quick Dry 吸湿速干性	- Wetting Time - 润湿时间 T(s)	- Top Surface - 顶表面	6.3 s	3级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	6.4 s	3级	≥ 3级	Pass 符合
	- Absorption Rate - 吸水速率 A(1%/s)	- Top Surface - 顶表面	66.7%/s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	67.6%/s	4级	≥ 3级	Pass 符合
	- Maximum Wetted Radius - 最大润湿半径 R(mm)	- Top Surface - 顶表面	20 mm	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	2.1 mm/s	3级	≥ 3级	Pass 符合
Absorption-Sweat Releasing 吸湿排汗性	- Wetting Time - 润湿时间 T(s)	- Top Surface - 顶表面	6.4 s	3级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	6.4 s	3级	≥ 3级	Pass 符合
	- Absorption Rate - 吸水速率 A(1%/s)	- Top Surface - 顶表面	67.6%/s	4级	≥ 3级	Pass 符合
		- Bottom Surface - 底表面	67.6%/s	4级	≥ 3级	Pass 符合
- One-way Transport Index - 单向导湿指数 O		-35.2	2级	≥ 3级	Fail 不符合	

## 环保再生棉纱

### Environmentally-friendly recycled cotton yarn



**产品规格：**20-60% 再生棉

**关键词：**再生棉 + 色纺

**推荐理由：**循环、再生、低碳、可持续发展已经成为全球性消费共识和趋势，温州天成纺织二十余年来一直致力于纺织材料的可持续发展，并与服装品牌商共同推出绿丝可莱计划，将服装制造过程中的边角料和回收的旧衣物，经过分拣、分离和独特的自主知识产权的纺纱技术及工艺制作成新的纱线，重新回到品牌商的服装中去，完成完美闭环。所生产的色纺纱线不再染色，原色纱线适合任何产品的加工使用，纱线品质媲美原生纱线，生产过程工艺环保，产品通过 GRS 再生认证并可追溯，同时主导制定了多项再生产品的国家、行业和团体标准。

**适用范围：**牛仔、针织面料、袜纱、手套纱等

**代表企业：**温州天成纺织有限公司（品牌——绿丝可莱）

**Product specification:**20-60% recycled cotton

**Keywords:**recycled cotton + color spinning

**Recommendation reasons:**Recycling, circulation, low-carbon and sustainable development have become the consensus and trend of global consumption. Wenzhou Tiancheng Textile has been committed to the sustainable development of textile materials for more than 20 years, and has jointly launched the RECYCOLOR Plan with clothing brand owners. The leftover materials during clothing manufacture and second-hand clothes are utilized to produce new yarn through sorting, separating and unique spinning technology and process with independent intellectual property rights, which are sent back to the clothing products of brand owners, forming a perfect closed loop. The produced color-spun yarn is no longer dyed and the unbleached yarn is suitable for the processing and use of any product. The quality of the yarn is comparable to the original yarn. The production process is environmentally-friendly and the product has passed GRS regeneration certification and can be traced back. At the same time, the Company has led the formulation of a number of national, industrial and association standards for recycled products.

**Scope of application:**Denim, knitted fabric, sock yarn, glove yarn, etc.

**Representing enterprises:**Wenzhou Tiancheng Textile Co., Ltd.; Brand - RECYCOLOR

## 高支再生纤维素纤维紧赛纱

### High-count recycled cellulose fiber compact Siro-spun yarn

**产品规格：**100% 莱赛尔，1.33dtex\*38mm

**关键词：**莱赛尔

**推荐理由：**莱赛尔纤维是绿色纤维，其原料是自然界中取之不尽用之不竭的纤维素，生产过程无化学反应，所用溶剂无毒。而且可以生物降解，对环境和身体健康都有好处。莱赛尔纤维既有棉的“舒适性”，又有涤纶的“强度”、毛织物的“豪华美感”以及真丝的“独特触感”及“柔软垂坠”。而且莱赛尔纤维无论是在干还是在湿的状态下，都极具韧性。莱赛尔制成的产品强度高，色泽明亮，具有柔软、丝滑、悬垂性好、透气性好、吸湿力强等特点。

**适用范围：**产品适用于针织、梭织、经编和各种混纺织物

**代表企业：**福建新华源纺织集团有限公司

**产学研：**为了持续性发展莱赛尔系列纱线产品，新华源集团与辽东学院联合成立“新材料纺织应用研究院”，更加深入地研究和发挥莱赛尔纱线应用优势。



**Product specification:**100% Lyocell, 1.33dtex\*38mm

**Keywords:**Lyocell

**Recommendation reasons:**Lyocell fiber is green and its raw material is inexhaustible cellulose in nature. There is no chemical reaction in the production process and the solvent used is nontoxic, besides, Lyocell fiber is biodegradable and beneficial to the environment and health. Lyocell fiber has the "comfort" of cotton, the "strength" of polyester, the "luxurious beauty" of wool fabric and the "unique touch" and "soft drapability" of real silk. Moreover, Lyocell fiber has extreme tenacity both in the dry and wet state. The products made from Lyocell have the features of high strength, bright color, softness, smoothness, good drapability, air permeability, and strong moisture absorption.

**Scope of application:**The products are suitable for knitted, woven, warp knitted and various blended fabrics

**Representing enterprises:**Fujian Xinhuiyuan Textile Group Co., Ltd.

**Industry-university-research:**In order to develop Lyocell yarn products sustainably, Xinhuiyuan Textile Group and Eastern Liaodong University jointly set up "New Material Textile Application and Research Institute" to study and give full play to the advantages of Lyocell yarn application.



## 再生纤维素纤维纱线

### Recycled cellulose fiber yarn

**产品规格：**100% 环保再生纤维素纤维（粘胶）

**关键词：**再生纤维

**推荐理由：**再生纤维素纤维，源自于自然界可循环再生的竹、木、速生林，成才速度快，不占用可耕地资源，吸湿、透气、染色性能优于棉花，是源于天然优于天然的绿色纤维。用它纺纱制成的织物废弃后可自然降解，不会造成白色污染，可实现产品“创新”、“绿色”、“低碳”、“环保”、“时尚”的特点。

**适用范围：**可用于高档成衣、休闲服、家纺等领域

**代表企业：**苏州震纶棉纺有限公司（品牌——SZEN）

**产学研：**与东华大学、苏州大学、江苏工程职业技术学院合作

#### 指标

名称 Name	莱赛尔 60s 紧赛 Lyocell 60s Compact Siro	莱赛尔 80s 紧赛 Lyocell 80s Compact Siro
重量 CV% Weight CV%	1.0	0.8
条干 CV% Evenness CV%	11.64	13.42
-50% 细节 / 千米 -50% snick/km	0	3
+50% 粗节 / 千米 +50% slub /km	8	25
+200% 棉结 / 千米 +200% nep /km	28	56
CVb%	2.9	1.0
强力 (CN) Strength(CN)	266.9	193.4
变异系数 CV% Variable coefficient CV%	9.8	10.9
毛羽 3mm 根数 /100 米 Hairiness 3mm Number of pieces/100m	149	171

**Product specification:** Product specification:100% environmentally-friendly recycled cellulose fiber (viscose)

**Keywords:**Recycled fiber

**Recommendation reasons:**Recycled cellulose fiber, originated from bamboo, wood and fast-growing woods which can be recycled in nature with a fast-growing speed, and do not occupy arable land resources, has the characteristics of moisture-absorption, air permeability, and better dyeing property than cotton, and is the nature-originated green fiber superior to natural fiber. The fabrics spun with it can be naturally degraded after being discarded, without causing white pollution, which can realize the characteristics of "innovation", "green development", "low carbon", "environmental protection" and "fashion".

**Scope of application:**it can be used in high-end ready-made clothes, sportswear, home textiles and other fields

**Representing enterprises:**Suzhou Zhenlun Cotton Spinning co., Ltd.;Brand - SZEN

**Industry-university-research:**The Company has cooperated with Donghua University, Soochow University and Jiangsu College of Engineering and Technology.

## 纯亚麻短流程赛络纱

### Pure flax short-process Siro-spun yarn



**产品规格：**100% 本色脱胶亚麻；赛络纺 13.5 英支

**关键词：**棉纺短流程

**推荐理由：**创新使用棉纺短流程工艺进行纯亚麻纱生产，使用脱胶开松亚麻二粗及精落原料，并提前养生预湿增加其可纺性，细纱采用赛络纺工艺提高纱线强力，降低强力不匀率。通过从原料的养生处理、加湿装置改造、设备改造、创新纺纱流程、创新工艺设计，用干法纺纱代替湿法纺纱研发高效短流程纯亚麻纱。相比传统的湿纺纯亚麻生产流程，该生产流程短，万锭用工少，加工方式环保，避免了资源浪费和环境污染，无需采用化学品后整理，降低了能耗和产品成本，减少了生产过程对环境的污染，增加了产品的天然环保特性，提高了产品附加值。该产品工艺属国内首创，整体水平达到国际先进水平。对我国纺织产品打破欧美贸易壁垒，占领海外市场提供了有力保证。据了解，干纺环锭纯亚麻纱目前国内的有三、四家生产企业，年产量大约 5000 吨左右。

**适用范围：**该纱线既能满足高速喷气织机（车速：520 转 / 分钟）用纱，更可用于低速剑杆织机（车速：280 转 / 每分钟）。

**代表企业：**河南平棉纺织集团股份有限公司

**产学研：**与河南省工程学院、中原工学院、天津工业大学、中国纺织大学等院校密切配合，研究出了以纯麻、石墨烯、涤维棉、仿羊绒为代表的系列产品，并投入批量生产。通过与纤维原料厂家和国内国际知名企业、品牌进行合作，不断提高公司产品开发创新能力，拓宽产品销售渠道。

**Product specification:**100% natural degummed flax; Siro spinning 13.5s

**Keywords:**Short process for cotton spinning

**Recommendation reasons:**The innovative short cotton spinning process is adopted to produce pure flax yarn by using degummed and opened flax coarse and refined falling raw materials and conducting advanced healthy processing and pre-wetting to increase its spinnability. The yarn strength of the spun yarn is increased and the unevenness of strength is reduced by adopting Siro-spinning process. Through the healthy treatment of raw materials, modification of humidification device, equipment modification, innovative spinning process and innovative process design, dry spinning is used instead of wet spinning to develop high-efficiency short-process pure flax yarn. Compared with the traditional wet spinning pure flax production process, the production process is a short, less labor-consuming, and environmentally-friendly processing method, avoiding resource wasting and environmental pollution, eliminating the need for after-treatment of chemicals, reducing energy consumption and product cost, reducing the environmental pollution in the production process, increasing the natural environmentally-friendly characteristics of products and increasing the added value of products. This production process is pioneered in China, and reaches the international advanced level overall. It provides a powerful guarantee for China's textile products to break the trade barriers of Europe and America and occupy overseas markets. It is understood that there are currently three or four production enterprises in China for producing dry spinning ring pure flax yarn, with an annual output of about 5,000 tons.

**Scope of application:**The yarn can not only meet the yarn requirements of high-speed air-jet loom (speed: 520 rpm), but also be applied to low-speed rapier loom (speed: 280 rpm).

**Representing enterprises:**Henan Pingmian Textile Group Co., Ltd.

**Industry-university-research:**The Company has cooperated closely with universities and colleges such as Henan University of Engineering, Zhongyuan University of Technology, Tiangong University, and Donghua University, and developed a series of products represented by pure flax, graphene, Diwei Cutton and artificial cashmere, and put them into mass production. Through cooperation with fiber raw material manufacturers, domestic and international well-known enterprises and brands, the Company continuously improves its product development and innovation capabilities and broadens its product sales channels.

#### 指标

序号 No.	检验项目 Test item	计量单位 Measuring unit	标准技术要求 Standard technical requirements	实测结果 Test result	单项结论 Single conclusion
1	百米重量偏差 Weight deviation per 100 meters	%	±3	0.74	合格 Satisfactory
2	百米重量变异系数 (CV) Coefficient of variation (CV) per 100 meters weight	%	≤ 3.5	1.83	合格 Satisfactory
3	单纱断裂强度 Single yarn breaking strength	CN/tex	≥ 8.0	9.37	合格 Satisfactory
4	单纱强力变异系数 (CV) Coefficient of variation (CV) of single yarn strength	%	≤ 18.0	12.75	合格 Satisfactory
5	条干均匀度变异系数 (CV) Coefficient of variation (CV) of evenness	%	≤ 30.0	28.5	合格 Satisfactory
6	千米细节 (+50%) Nep per 1,000 meters (+50%)	个/km Pc/km	≤ 2300	2000	合格 Satisfactory
7	千米粗节 (-50%) Slub per 1,000 meters (-50%)	个/km Pc/km	≤ 3500	3132	合格 Satisfactory
8	千米棉结 (+200%) Cotton knot per 1,000 meters (+200%)	个/km Pc/km	≤ 5000	4100	合格 Satisfactory
9	纤维含量 Fiber content	%	麻 100% Flax 100%	麻 100% Flax 100%	合格 Satisfactory



## 循环棉混纺色纺纱

### Circulating cotton blended color-spun yarn

**产品规格:** 40% 循环棉 /20% 棉 /40% 原液着色聚酯纤维 (涤纶)

**关键词:** 精梳落棉

**推荐理由:** 采用精梳落棉循环利用, 变废为宝, 实现了“绿色制造”新理念。对工艺流程进行再造, 实现了新的纺纱工艺。将赛络纺技术前移至粗纱工序, 实现了粗纱 AB 纱的原创技术。对关键工序——梳棉进行改造和工艺研究, 改变梳棉机的特点, 由落掉短绒改为少落, 实现了科技与时尚的有机结合。

**适用范围:** 针织 T 恤、卫衣、运动裤、毛衫、内衣、休闲西装

**代表企业:** 汶上如意技术纺织有限公司

**产学研:** 与青岛大学、红妮集团就《海藻纤维针织纱线研究及产业化》项目进行深度合作, 与西南大学就《高浓度阳离子改性剂合成工艺研发及纤维素纤维洁净染色产业化纺纱应用》项目进行联合开发。

**认证标准及专利:** 发明专利《一种新式溢彩竹节纱的加工方法》201410749948.7

**Product specification:** Dyed polyester fiber with 40% recycled cotton /20% cotton /40% stock solution (polyester)

**Keywords:** Comber noil

**Recommendation reasons:** This product conducts the cyclic utilization of noil from combing, turning wastes into wants and realizing the new concept of “green manufacturing”. The new spinning process is realized by reconstructing the process. Siro spinning technology is advanced to the roving process, and the original technology of roving AB yarn is realized. The key process of cotton carding is reformed and studied on its process, and the characteristics of carding machine are changed from dropping out flocks to reducing the dropping of flocks, realizing the organic combination of technology and fashion.

**Scope of application:** Knitted T-shirt, fleeces, sweatpants, sweater, underwear, and leisure suit

**Representing enterprises:** Wenshang Ruyi Technology Textile Co., Ltd.

**Industry-university-research:** The Company has conducted in-depth cooperation with Qingdao University and Hongni Group on “Research and Industrialization of Alginate Fiber Knitting Yarn”, and has jointly developed with Southwest University on “Research and Development of Synthetic Process of High-concentration Cationic Modifier and Industrial Spinning Application of Cellulose Fiber Clean Dyeing”.

**Certification, standards and patents:** Invention Patent New Processing Method of colorful bunchy yarn (201410749948.7)

## 抑菌植物染纱

### Bacteriostatic vegetable dyed yarn

**产品规格:** 精棉 / 有机棉 / 新型纤维纯纺或混纺

**关键词:** 植物染 + 色纺纱

**推荐理由:** 绿色环保, 色牢度达到 4 级以上, 对白色念珠菌、大肠杆菌、金黄色葡萄球菌具有抑制作用。

**适用范围:** 童装、内衣

**代表企业:** 德州恒丰纺织有限公司

**产学研:** 与青岛大学、锦柯草木染 (上海) 纺织科技有限公司、山东省锦润嘉植物染色科技有限公司等合作, 形成了完整的工业化产业链。建有山东省植物染工业化研究院, 有自己的色纤染色工厂。

**Product specification:** Refined cotton/organic cotton/new fiber pure-spinning or blending-spinning

**Keywords:** Vegetable dyed + color-spun yarn

**Recommendation reasons:** It is green and environmentally-friendly, with color fastness of above level 4, and play a restraining role against Candida albicans, Escherichia coli and Staphylococcus aureus.

**Scope of application:** Children's wear and underwear

**Representing enterprises:** Dezhou Hengfeng Textile Co., Ltd.

**Industry-university-research:** The Company has cooperated with Qingdao University, Jinke Grass and Wood Dyeing (Shanghai) Textile Technology Co., Ltd., Shandong Jinrunjia Plants Dyeing Technology Co., Ltd., etc., forming a complete industrial chain. It also established Shandong Institute of Plant Dyeing Industrialization and its own colored fiber dyeing plant.

#### 指标

检测项目 Test item	测试方法 (参数说明) Test method (Parameter Description)	技术要求 technical requirement	测试结果 Test result	判定 Conclusion
纤维含量 (%) Fiber content	FZ/T 01095-2002 GB/T2910.6-2009 GB/T 29862-2013 (结合公定回潮率) (Combined with the public moisture regain)	--	莱赛尔 49 棉 47 氨纶 4 lyocell 49 cotton 47 spandex 4	--
抑菌率 (%) Antibacterial rate	GB/T20944.3-2008 振荡法 Oscillation method	金黄色葡萄球菌 (ATCC6538) ≥ 70 Staphylococcus aureus	金黄色葡萄球菌 (ATCC6538) 81 Staphylococcus aureus	具有抗菌效果 antibacterial effect
		大肠杆菌 (8099) ≥ 70 Escherichia coli	大肠杆菌 (8099) 76 Escherichia coli	具有抗菌效果 antibacterial effect
		白色念珠菌 (ATCC 10231) ≥ 60 Candida albicans	白色念珠菌 (ATCC 10231) > 99 Candida albicans	具有抗菌效果 antibacterial effect

## 纯棉无荧光纱

### Pure cotton non-fluorescent yarn

产品规格：100% 棉

关键词：无荧光

推荐理由：在传统纺纱中加强原料选择、纺纱过程管理、包装材料控制等，确保纱线中无荧光物质存在，保证婴童服装面料对“0 荧光”的要求。

适用范围：婴童服装面料、高端针织面料、家纺、医卫等

代表企业：利泰醒狮（太仓）控股有限公司（品牌——利泰醒狮）

#### 指标 Indicators

品种 Type		JCF40S/1K (14.6)	
试验项目 Test item	单位 unit		
重量 Weight	平均重量 Average weight	g/100m	1.410
	号数 Number	tex	14.5
捻度 Degree of twist	捻系数 Twist coefficient	/	331
	捻度 Degree of twist	T/10cm	86.5
条干 Evenness	条干 CV% Evenness CV%	%	10.96
	-50% 细节 -50% nep	个 /KM	0
	+50% 粗节 +50% slub	个 /KM	3.0
	+140% 棉结 +140% cotton knot	个 /KM	83
强力 USTER TENSOJET 4 Strength USTER TENSOJET 4	+200% 棉结 +200% cotton knot	个 /KM	13
	强力 CV ≤ Strength CV ≤	%	6.7
	平均强力 Average strength	cN	283.3
	断裂强力 Strength at break	cN/tex	19.4
	伸长率 Elongation	%	5.5
	伸长变异系数 Variable coefficient of elongation	%	6.5

**Product specification:**100% cotton

**Keywords:**Non-fluorescent

**Recommendation reasons:**The product strengthens the selection of raw materials, the management of the spinning process, the control of packaging materials in the traditional spinning, ensuring that there is no fluorescent substance in the yarn, and meeting the “Zero fluorescence” requirement of infants and children clothing fabrics.

**Scope of application:**Infants and children clothing fabrics, high-end knitted fabrics, home textiles, health care, etc.

**Representing enterprises:**Litai Xingshi (Taicang) Holding Co., Ltd.; Brand - Litai Xingshi

## 天然舒适保暖混纺纱线

Natural, comfortable and warm blended yarn



**产品规格:** 腈纶 50%/ 莫代尔 40%/ 羊毛 (野蚕丝) 10%; 或腈纶 30%/ 莫代尔 30%/ COOLMAX30%: 羊绒 (野蚕丝) 10%

**关键词:** 热湿舒适

**推荐理由:** 充分利用各混纺纤维的特性, 展现不一样的特点, 产品独特, 天然、舒适、保暖、抗起毛起球。产量: 5 吨; 利润率: 30% 及以上; 研发投入比: 10% 及以上。联合高校、原料供应商、下游的面料、服装企业共同研发推广。

**适用范围:** 开发系列适合御寒轻薄、舒适保暖内衣。

**代表企业:** 安徽华茂纺织股份有限公司; 品牌——乘风牌

**产学研:** 与国内知名高等院校、科研院所如上海东华大学、武汉理工大学、武汉纺织大学、安徽工程大学、江南大学、安徽农业大学等进行联合研究开发, 加快推进代表行业先进技术水平的重点攻关项目和课题, 围绕核心技术、关键技术进行科学、系统的攻关。与此同时, 加大与上下游企业进行合作, 尤其是与上游新原料企业的合作与开发, 共同开发新产品。

**Product specification:** Acrylic fiber 50%/ Modal 40%/ Wool (wild silk) 10%; or acrylic 30%/ Modal 30%/ COOLMAX 30%: Cashmere (wild silk) 10%

**Keywords:** Thermal-wet and comfortable

**Recommendation reasons:** The product makes full use of the features of various blended fibers to show different characteristics: unique, natural, comfortable, warm-keeping, and anti-pilling. The output is 5 tons; the profit rate is 30% and above; R&D investment ratio: 10% and above. The product is developed and promoted jointly by universities, raw material suppliers, downstream fabrics and clothing enterprises.

**Scope of application:** The developed series is suitable for coldness-resistant, light and thin, comfortable and warm-keeping underwear.

**Representing enterprises:** Anhui Huamao Textile Co., Ltd.; Brand - Chengfeng Brand

**Industry-university-research:** The Company has conducted joint research and development with domestic famous universities and colleges such as Shanghai Donghua University, Wuhan University of Technology, Wuhan Textile University, Anhui Polytechnic University and Jiangnan University, so as to accelerate the key research projects and topics that represent the advanced technology level of the industry, and carry out scientific and systematic research centered on core technologies and key technologies. In the meanwhile, the Company also enhances cooperation with upstream and downstream enterprises, especially with upstream enterprises of new raw materials, to jointly develop new products.



**指标**  
Indicators

紧密赛络纺: 腈纶 / 莫代尔 / 野蚕丝  
混纺比例: 50/40/10  
纱支: 60 支  
Compact Siro spinning: acrylic fiber/Modal/wild silk  
Blending ratio: 50/40/10  
Yarn count: 60

检测项目 Test item	实测值 Measured value
重量偏差 (%) Weight deviation (%)	-1.1
条干 CV% Weight deviation (%)	10.4
千米细节 -50% Nep per 1,000 meters-50%	0.3
千米粗节 +50% Slub per 1,000 meters+50%	3.0
千米棉结 +200% Cotton Knot per 1,000 meters+200%	7.5
千米棉结 +140% Cotton Knot per 1,000 meters+140%	38.3
平均毛羽 H Average hairiness H	3.4
强力 CV% Average hairiness H	8.8
修正前平均强力 (cN) Average strength before correction(cN)	147.2
修正前最低强力 (cN) Lowest strength before correction (cN)	95.8
伸长率 (%) Elongation (%)	8.9
伸长率 CV% Elongation CV%	9.4
平均捻度 (捻 /10cm) Average degree of twist (twist/10cm)	109.4
捻系数 Twist coefficient	342.5
2mm 毛羽 (根 /10m) 2mm hairiness (piece/10m)	84.0
3mm 毛羽 (根 /10m) 3mm hairiness (piece/10m)	17.0
A3B3C3D2	5.5
A1B1C1D1	162.0

## 蓄热保暖三包芯混纺纱

## Heat-retaining and warm-keeping three-core blended yarn



**产品规格：**53% 火山岩灰色聚酯纤维（涤纶）/23% 棉 /17% 涤纶长丝 /7% 双氨纶丝

**关键词：**热湿舒适

**推荐理由：**应用从火山岩天然矿石中提取的纤维，利用其吸收热力的特性，将蓄热保暖分子有效的注入纱线和服装面料中，从而达到减缓热量流失的功效；面料中含有 30% 及以上火山岩纤维时，可使皮肤温升 1.14℃，达到干爽保暖的效果。采用自主创新的设备装置加工制备，芯纱为非弹长丝 + 双弹氨纶长丝的三包芯特殊结构，是单芯和双芯纱弹性升级版，面料尺寸稳定好、弹性更足更持久，产品利润率在 14% 左右。

**适用范围：**该弹力产品为牛仔用纱；火山岩纤维非弹纱线可广泛用于机织、针织的运动休闲服装，以及羽绒服、外套等

**代表企业：**山东岱银纺织集团股份有限公司

**产学研：**与军事科学院系统工程研究院军需工程技术研究所、西安工程大学、东华大学、天津工业大学、江南大学、武汉纺织大学、广州纺科院等知名院所建立了长期稳定的合作关系，纱线产品为差异化高端牛仔用纱。

**Product specification:**53% volcanic gray polyester fiber (polyester) /23% cotton /17% polyester filament /7% double spandex filament

**Keywords:**Thermal-wet and comfortable

**Recommendation reasons:**The product is made of fibers extracted from volcanic natural ore and applies its feature of heat absorption to effectively inject the heat storage and warm-keeping molecules into yarns and clothing fabrics, so as to achieve the effect of slowing down heat loss; when the fabric contains 30% or more volcanic fibers, the skin temperature can rise by 1.14℃, thus achieving the effect of dryness and warm-keeping. The product is processed and prepared with independent innovative equipment and devices. The core yarn is the special three-core structure of non-filament + double spandex filament, which is an elastic upgraded version of single-core and double-core yarn, reaching the requirements of stable fabric size, sufficient and durable elasticity and realizing the product profit rate of about 14%.

**Scope of application:**The elastic product is the yarn used in denim ; volcanic fiber non-elastic yarn can be widely used in machine-weaving and knitted sports and leisure clothing, down jackets, coats and so on.

**Representing enterprises:**Shandong Daiyin Textile Group Co., Ltd.

**Industry-university-research:**The Company has established long-term and stable cooperation with well-known prestigious institutes such as Institute of Quartermaster Engineering Technology, Institute of Systems Engineering, Academy of Military Science, Xi'an Polytechnic University, Donghua University, Tiangong University, Jiangnan University, Wuhan Textile University, and China Textile Academy in Guangzhou. Its yarn products are differentiated high-end yarn for denim.

## 保暖中空纯棉纱

## Warm-keeping hollow pure cotton yarn



**产品规格：**100% 棉

**关键词：**热湿舒适

**推荐理由：**中空纱线具有纱线内部空隙增大呈中空结构，其吸水速干性能得到改善；空气隔层使得面料热传导率降低，并且从皮肤表面吸收的热量减少，进一步提升了纯棉面料的保温性和接触暖感；中空纱织物面料具有重量轻、手感柔和、吸水速干、保暖性好等特点。

**适用范围：**应用于卫衣、家居服、婴童、内衣针织产品面料

**代表企业：**魏桥纺织股份有限公司；品牌——魏桥牌棉纱、嘉嘉家纺、向尚运动

**产学研：**与中国纺织信息中心、国家纺织产品开发中心、中国纺织工程学会以及等机构的合作交流，积极参与国家纺织产品开发中心主导下的“产品技术创新联盟项目”，成功对接了多个产品开发新项目。与东华大学、武汉纺织大学等纺织专业院校签署了产学研合作协议，与青岛大学、天津工业大学、江南大学、苏州大学等纺织院校保持着良好的合作关系，并与赛得利、吉林化纤、中纺绿纤等纤维研发企业、利郎、金太阳、安踏等品牌客户，密切开展上下游企业协作，促进行业协同创新和交流合作。



**Product specification:**100% cotton

**Keywords:**Thermal-wet and comfortable

**Recommendation reasons:**The hollow yarn has a hollow structure with the increased internal gap, and its water-absorption and quick-drying performance are improved; the air buffer reduces the thermal conductivity of the fabric and the heat absorbed from the skin surface, which further improve the warm-keeping and contact warmth of the pure cotton fabric; the hollow yarn fabric has the characteristics of light weight, soft touch, water absorption, quick drying, good warm-keeping and so on.

**Scope of application:**It is applied to knitted fabrics of fleeces, loungewear, infants and children clothing and underwear

**Representing enterprises:**Weiqiao Textile Company Limited; Brand - Weiqiao Brand Cotton, Jiajia Home Textile, Xiangshang Sportswear

**Industry-university-research:**The Company has cooperated and exchanged with China Textile Information Center, National Textile Product Development Base, China Textile Engineering Society and other institutions, actively participated in the "Product Technology Innovation Alliance Project" led by National Textile Product Development Base, and successfully joined several new product development projects. It has signed industry-university-research cooperation agreements with textile colleges such as Donghua University and Wuhan Textile University, and has maintained good cooperative relations with textile-competitive such as Qingdao University, Tiangong University, Jiangnan University and Soochow University. It has also cooperated closely with upstream and downstream enterprises with fiber R&D enterprises such as Sateri, Jilin Chemical Fiber Group Co., Ltd., and Grecell Co., Ltd. as well as brand customers such as Lilang, Golden Sun and Anta, to promote collaborative innovation, exchanges and cooperation in the whole industry.

指标

环形空腔率 Annular cavity rate	27.3%
CM40SK(100% 长) +T50D 水溶聚酯纱线指标 CM40SK(100% long) +T50D water soluble polyester yarn	条干 CV%9.30% evenness CV%9.30%
细节 nep	0/1
粗节 slub	2/13
棉结 cotton knot	7/40
CVb%	2.01%
DR%	16.41%
强力 strength	374.9CN
强力 CV% strength CV%	8.0%
伸长率 % elongation %	7.5%

## 吸湿抑菌亚麻混纺纱

### Hygroscopic and bacteriostatic flax blended yarn



**产品规格:**38% 莱赛尔 /28% 再生纤维素纤维 (粘胶) /19% 亚麻 /15% 锦纶

**关键词:**抑菌 + 抗静电 + 吸湿排汗

**推荐理由:**巧妙构思采用兰精公司莱赛尔和再生环保粘胶与抑菌抗静电性能优良的亚麻纤维和高强耐磨的锦纶纤维有机结合, 拓宽各种纤维性能, 以此实现零浪费环保目标。做成的织物具有抑菌抗静电、吸湿排汗、低碳环保、高强耐磨等优良性能, 能大大降低对环境的影响。

推出符合理性消费观念的小型系列。运用功能性材料, 为单品注入可持续设计特点。目前, 生产效率达 98.5% 以上, 劳动强度不大, 利润率在 15% 左右。

**适用范围:**广泛应用于针织、机织服装以及家纺面料

**代表企业:**山东岱银纺织集团股份有限公司

**产学研:**与军事科学院系统工程研究院军需工程技术研究所、西安工程大学、东华大学、天津工业大学、江南大学、武汉纺织大学、广州纺科院等知名院所建立了长期稳定的合作关系, 纱线产品为差异化高端牛仔用纱。

**Product specification:**38% Lyocell/ 28% recycled cellulose fiber (viscose)/ 19% flax/ 15% nylon

**Keywords:**Bacteriostatic + antistatic + moisture wicking

**Recommendation reasons:**The product adopts an ingenious idea of the organic combination of Lenzing's Lyocell, recycled, environmentally-friendly viscose, flax fiber with excellent bacteriostatic and antistatic properties, and reinforced wear-resistant nylon fiber, to expand the properties of various fibers so as to achieve the goal of zero waste and environmental conservation. The produced fabric has excellent properties: It is anti-bacteria, anti-static, moisture wicking, environmentally-friendly, producing low carbon emission, with high strength and wear resistance, and can reduce substantially the impact on the environment.

A series of compact products that meet rational consumption ideas have been launched. The application of functional sport materials infuses the sustainable design features to a single product. Currently, the production efficiency is above 98.5%, the labor intensity is not very high, and the profit rate is about 15%.

**Scope of application:**The product is widely used in knitted and woven garments and home textile fabrics.

**Representing enterprises:**Shandong Daiyin Textile Group Co., Ltd.

**Industry-university-research:**The Company has established long-term and stable cooperation with well-known prestigious institutes such as Institute of Quartermaster Engineering Technology, Institute of Systems Engineering, Academy of Military Science, Xi'an Polytechnic University, Donghua University, Tiangong University, Jiangnan University, Wuhan Textile University, and China Textile Academy in Guangzhou, and its yarn products are differentiated high-end yarn for denim.

## 抑菌混纺赛络纺纱

## Bacteriostatic blended Siro-spun yarn

**产品规格:** 80% 棉 /20% 再生纤维素纤维 (安泰贝)

**关键词:** 抑菌

**推荐理由:** 随着社会的发展和科技的进步,人们对生活水平也提出了更高要求,时尚、舒适、功能性面料成为人们关注的焦点。加之新冠疫情的影响,抑菌、抗病毒的面料更加激发了人们对时尚和健康的追求。具有抑菌、抑菌功能的安泰贝产品正切合了人们的消费观。通过注射纺丝技术将活性抑菌物质均匀分散在纤维表面及内部,对细菌、真菌及病毒等微生物具有抑制作用。原料源自木源纤维亲肤、不致敏,安全有效实现抑菌性能,提升穿着体验。

**适用范围:** 各种内衣用料

**代表企业:** 高青如意纺织有限公司;品牌——如意

**产学研:** 常年与武汉纺织大学签订合作协议,产品在欧美市场和日韩市场备受追捧,且交易额逐年提升。



**Product specification:** 80% cotton/20% recycled cellulose fiber (Antaibei)

**Keywords:** Bacteriostatic

**Recommendation reasons:** Social and technological advancements have fueled people's desires for higher living standards, and fashionable and comfortable functional fabrics have drawn more attention. Coupled with the impact of the COVID-19 pandemic, bacteriostatic and antiviral fabrics have further stimulated people's pursuit of fashion and health. The bacteria-resistant Antaibei products are in line with people's consumption view. Through the injection spinning technology, the active bacteriostatic substance is evenly distributed on the surface and inside of the fiber to inhibit bacteria, fungus, viruses and other microorganisms. The raw materials, derived from wood fiber, are skin-friendly, non-allergenic, safe and effective to achieve bacteriostatic properties, therefore enhancing the wearing experience.

**Scope of application:** Various fabrics for underwear

**Representing enterprises:** Gaoqing Ruyi Textile Co., Ltd.; Brand - Ruyi

**Industry-university-research:** The company has signed a cooperation agreement with Wuhan Textile University over the years. The products are highly popular in the European, American, Japanese and Korean markets, with transaction volume increasing year by year.

## 指标

品种 (筒纱) Type (cone yarn)	棉 / 安泰贝 80/20 10S Cotton/Antaibei
重量 CV% Weight CV%	0.8
重量偏差 Weight deviation	-0.8
回潮率 % Moisture regain %	5.8
强力 CV% Strength CV%	4
单纱强力 CN Single Yarn Strength CN	862.84
断裂强度 Breaking strength	14.8
伸长率 Elongation	7.6
伸长率 CV% Elongation CV%	5.1
最小强力 CN Minimum strength CN	795.4
毛羽指数 H Hairiness Index H	7
条干 CVb Evenness CVb	2.2
条干 CV% Evenness CV%	9
细节 /Km (-50) Nep/Km(-50)	0
粗节 /Km (+50%) Slub/Km(+50%)	2
棉结 /Km (200%) Cotton Knot(200%)	2
捻度 (T/10Cm) twist(T/10Cm)	50.2
捻系数 Twist coefficient	383.3
捻度 CV% Degree of twist CV%	2.1

## 吸湿发热抑菌赛络纺纱

### Hygroscopic, heating and bacteriostatic Siro-spun yarn

**产品规格：**40% 功能性再生纤维素纤维（粘胶）/ 30% 功能性腈纶 / 30% 精梳棉

**关键词：**吸湿发热 + 抑菌

**推荐理由：**吸湿、发热、抑菌、抗静电等特性使面料具有良好的亲肤性，面料可单染，实现雪花、撞色等色纺效果，满足客户对产品外观的不同需求；产品附加值高；此外，环保特性保障了产品的长久生命力，在产业领域实现可持续发展。年产量 3000 吨左右，利润率 10% 左右。

**适用范围：**针织保暖内衣，婴幼儿内衣、家居服、床品等

**代表企业：**杭州永昉纺织有限公司（品牌——沐安娜）

**Product specification:**40% functional recycled cellulose fiber (viscose)/30% functional acrylic fibers/30% combed cotton

**Keywords:**Hygroscopic and heating + bacteriostatic

**Recommendation reasons:**Moisture absorption, heat generation, bacteriostatic, antistatic, and other characteristics make the fabric very skin-friendly.

The fabric can be dyed through a single-bath process to achieve the effect of color spinning such as snowflakes and color contrasting and meet the different needs of customers for the appearance of the products; the product has high added value; In addition, environmentally-friendly features ensure the long-term vitality of products and their sustainable development in the industry. The annual output is about 3,000 tons, with a profit rate of about 10%.

**Scope of application:**Knitted thermal underwear, infant underwear, lounge wear, bedding, etc.

**Representing enterprises:**Hangzhou Yongfang Textile Co., Ltd.; Brand - MUANNA

#### 指标

检测项目 (计量单位) (样品识别) Test item ( measurement unit ) ( Sample identification )	测试方法 Test method	标准值及允差 (一等品) Standard value and tolerance ( First grade)	测试结果 Test Results	判定 Conclusion
起球 (级) Pilling ( level )	GB/T4802.1-2008 圆轨迹法起球 600 次压力 780cN Circular trajectory method pilling 600 times pressure 780cN	≥ 3	3-4	符合 Pass
吸湿发热性能 Heat absorption performance	FZ/T 73036-2010 最高升温值 Maximum heating value	≥ 4°C	8.7°C	符合 Pass
	FZ/T 73036-2010 30min 内平均升温值 Average heating value within 30min	≥ 3°C	3.0°C	符合 Pass
保温率 Insulation rate	GB/T 11048-1989 方法 A 平板式 Method A Flat	保温率 ≥ 30% Insulation rate:30%	保温率 30.63% 克罗值 0.2533clo 传热系数 25.64W/n²·°C Insulation rate:30.63% Crowe value:0.2533clo Heat transfer coefficient 25.64W/n²·°C	符合 Pass
抗菌性 Antibacterial	TZ/T73023-2006 金黄色葡萄球菌抑菌率 Staphylococcus aureus inhibition rate	≥ 80%	94.9	符合 Pass
	TZ/T 73023-2006 大肠杆菌抑菌率 Escherichia coli inhibition rate	≥ 70%	86.8	
	TZ/T 73023-2006 白色念珠菌抑菌率 Inhibition rate of Candida albicans	≥ 60%	86.4	



## 抑菌混毛纱

### Bacteriostatic blended wool yarn

**产品规格：**44% 棉 / 19% 禾素纤维 / 9% 羊驼毛 / 28% 羊毛；或 26% 莫代尔 / 12% 禾素纤维 / 31% 婴驼纤维 / 31% 羊毛

**关键词：**持久抑菌 + 触感

**推荐理由：**不同于市场上其它后期所加的助剂、重金属离子或石墨烯材料（不可降解），公司自主研发的禾素纤维天然环保、全生物基可降解纤维、抑菌消臭、抗病毒、透气、保暖、亲肤性好、安全等优点。产品以禾素、莫代尔、羊驼毛等环保纤维为原料，都是取自自然界。通过优化染色工艺和后整理工艺，制备优良的无添加任何功能性助剂从而制的优良的功能性面料。

**适用范围：**功能性针织毛衫等

**代表企业：**南京禾素时代抗菌材料科技有限公司；品牌——禾素时代

**认证标准及专利：**FZ/T 22016-2019 喷毛纱



**Product specification:**44% cotton/19% Bioserica fiber/9% alpaca fiber/28% wool; or 26% Modal/12% Bioserica fiber /31% juvenile fiber/31% wool

**Keywords:**Persistent bacteriostatic effect + touch

**Recommendation reasons:**Unlike other peer products on the market with additives, heavy metal ions or graphene materials (non-degradable), the Company's self-developed Bioserica fiber is a kind of full bio-based degradable fiber, with natural and environmentally-friendly, bacteriostatic, odor eliminating, anti-virus, breathable, warm-keeping, skin-friendly, and safe properties. The product is made of environmentally-friendly fiber materials such as Bioserica, Modal, and alpaca fiber, all of which are originated from the natural world. By optimizing the dyeing process and post-finishing process, an excellent functional fabric is produced without adding any functional additives.

**Scope of application:**Functional knitted sweaters, etc.

**Representing enterprises:**Nanjing Bioserica Era Bacteriostatic Materials Technology Co., Ltd.; Brand - Bioserica Era

**Certification, standards and patents:**FZ/T 22016-2019 Spray fluffy yarn

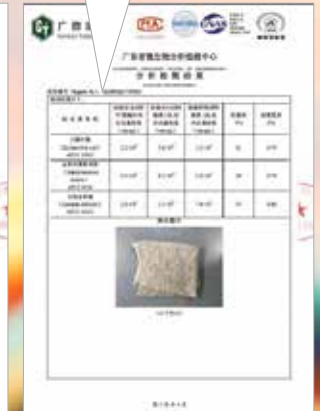
**广东省微生物分析检测中心**  
GUANGDONG DETECTION CENTER OF MICROBIOLOGY  
**分析检测结果**  
ANALYSIS AND TEST RESULT

报告编号 (Report No.): 2020FM26038R01

测试结果如下:

测试微生物	标准空白试样 经长时间 的活菌浓度 (cfu/mL)	标准空白试样 经高 18h 后 的活菌浓度 (cfu/mL)	抗菌剂试样 经高 18h 后 的活菌浓度 (cfu/mL)	抑菌率 (%)	标准要求
大肠杆菌 ( <i>Escherichia coli</i> ) ATCC 25922	$2.3 \times 10^8$	$7.0 \times 10^8$	$1.1 \times 10^8$	84	$\geq 70\%$
金黄色葡萄球菌 ( <i>Staphylococcus aureus</i> ) ATCC 6538	$2.5 \times 10^8$	$6.3 \times 10^8$	$1.5 \times 10^8$	99	$\geq 70\%$
白色念珠菌 ( <i>Candida albicans</i> ) ATCC 10231	$1.7 \times 10^8$	$1.1 \times 10^8$	$5.2 \times 10^7$	95	$\geq 60\%$

指标  
Indicators





## 抑菌混纺纱

### Bacteriostatic blended yarn



**产品规格：**80% 棉 /20% 星卫纤维

**关键词：**抑菌、杀菌

**推荐理由：**星卫纤维是运用了银微子独有的穿透性抑菌性能，以涤纶纤维为载体，以专利技术导入而生产而成。星卫纤维的纺织性能跟一般涤纶无异，可与其他纺织原料混纺成不同成份的纱线。星卫纤维的嵌入专利工艺，在无任何化学或金属离子释出的条件下，制作出高抑菌能力和安全长效的布料，纱线和布料已经多家权威机构检测认证，具有耐高温、耐酸碱、水洗 50 次无释出的特点；同时，抑菌抗病毒，除臭效果好，安全长效。

目前在机生产的星卫纤维分为三组份和二组份配比纱线：毛羽少，面料细腻，滑爽，透气，附加值高。

**适用范围：**针织服装，内衣，口罩等医疗保健用品

**代表企业：**德州恒诚仓储物流集团有限公司（品牌——星卫纤维）

**Product specification:** 80% cotton/20% Xingwei fiber

**Keywords:** Bacteriostatic and bactericidal

**Recommendation reasons:** Xingwei fiber is produced by using the unique penetrating bacteriostatic property of silver microparticles, with the polyester fiber as a carrier through patented technology. The textile performance of this fiber is the same as ordinary polyester, and it can be blended with other textile materials into yarns of different components. Xingwei Fiber's patented embedding process produces high bacteriostatic, safe, and long-lasting fabrics without any chemical or metal ion release. The yarn and fabric have been tested and certified by many authoritative organizations and are resistant to high temperature, acid, and alkali, with no liberation after washing 50 times; meanwhile, the bacteriostatic and antiviral material is also safe and long-lasting with good deodorizing effect.

Xingwei fiber currently produced on the machine is divided into three-component and two-component matching yarns: the fabric is low-hairiness, fine, smooth, and breathable, with high added value.

**Scope of application:** Knitwear, underwear, masks and other medical and health care products

**Representing enterprises:** Dezhou Hengcheng Storage Logistics Co., Ltd.; Brand-Xingwei Fiber

描述  
Indicators

检测项目 Items	判定依据 Judgment Basis	结论 Conclusion
1 纤维含量 Fiber content	---	---
2 甲醛含量 Formaldehyde content	GB 18401-2010	符合 Pass
3 pH 值 pH Value	GB 18401-2010	符合 Pass
4 异味 Determination of odour	GB 18401-2010	符合 Pass
5 可分解偶氮芳香胺染料(24 种) Banned azo colourants(24 kinds)	GB 18401-2010	符合 Pass
6 耐水色牢度 Colour fastness to water	GB 18401-2010	符合 Pass
7 耐酸汗渍色牢度 Colour fastness to acid perspiration	GB 18401-2010	符合 Pass
8 耐碱汗渍色牢度 Colour fastness to alkaline perspiration	GB 18401-2010	符合 Pass
9 耐干摩擦色牢度 Colour fastness to dry rubbing	GB 18401-2010	符合 Pass
10 *大肠杆菌(Escherichia coli)抑菌率 Bacteriostatic rate of Escherichia coli	*GB/T 20944 2-2007	具有抗菌效果 has antibacterial effect
11 *肺炎克雷伯氏菌(Klebsiella pneumoniae)抑菌率 Bacteriostatic rate of Klebsiella pneumoniae	*GB/T 20944 2-2007	具有抗菌效果 has antibacterial effect
12 *金黄色葡萄球菌(Staphylococcus aureus)抑菌率 Bacteriostatic rate of Staphylococcus aureus	*GB/T 20944 2-2007	具有良好抗菌效果 has good antibacterial effect

检测项目 Item	标准要求 Requirement	实测值 Results	单项判定 Judgement
10 *大肠杆菌(Escherichia coli)抑菌率 Bacteriostatic rate of Escherichia coli	*GB/T 20944 2-2007	98	具有抗菌效果 has antibacterial effect
11 *肺炎克雷伯氏菌(Klebsiella pneumoniae)抑菌率 Bacteriostatic rate of Klebsiella pneumoniae	*GB/T 20944 2-2007	90	具有抗菌效果 has antibacterial effect
12 *金黄色葡萄球菌(Staphylococcus aureus)抑菌率 Bacteriostatic rate of Staphylococcus aureus	*GB/T 20944 2-2007	>99	具有良好抗菌效果 has good antibacterial effect

## 抑菌混纺紧赛纱

## Bacteriostatic blended compact Siro-spun yarn

**产品规格：**60% 莫代尔 /40% 恒锦抑菌纤维；赛络紧密纺 40 英支

**关键词：**抑菌除臭 + 再生

**推荐理由：**在保证内衣特性柔软、保暖的基础上，结合抗疫情况，注入了抑菌元素。为保证人体健康、安全贡献力量，已实现批量生产。

**适用范围：**主要用作针织内衣和户外运动服装

**代表企业：**临邑恒丰纺织科技有限公司（品牌——恒锦）

**产学研：**与青岛大学、天津大学实现产学研合作

**Product specification:**60% Modal/40% Hengjin bacteriostatic fiber; compact Siro-spun 40s

**Keywords:**Bacteriostatic and deodorant + recycle

**Recommendation reasons:**On the basis of ensuring the softness and warmth of the underwear, bacteriostatic elements are added against the anti-epidemic background, making contributions to health and safety protection, and the product has achieved mass production.

**Scope of application:**Mainly used for knitted underwear and outdoor sportswear

**Representing enterprises:**Linyi Hengfeng Textile Technology Co., Ltd.; Brand - Hengjin

**Industry-university-research:**The Company has realized industry-university-research cooperation with Qingdao University and Tianjin University.

## 抑菌保暖石墨烯纤维混纺纱

## Bacteriostatic thermal graphene fiber blended yarn

**产品规格：**棉 / 氨纶 /20%-80% 石墨烯纤维

**关键词：**抑菌、保暖

**推荐理由：**将石墨烯改性涤纶纤维与精梳棉混纺通过三道条混、交叉混并的方式增强纤维的混合效果，并条采用石墨烯改性涤纶条包裹棉纤维精梳条，以确保纱线的抑菌效果；优选粗纱定量适当降低粗纱捻系数，增大细纱浮游区纤维的离散程度，增强包芯纱的包覆效果；氨纶长丝采用 4.0 倍预牵伸倍数提高石墨烯混纺纱线回弹效果。

**适用范围：**机织服装、针织运动领域

**代表企业：**魏桥纺织股份有限公司；品牌——魏桥、嘉嘉家纺、向尚运动

**产学研：**与中国纺织信息中心、国家纺织产品开发中心、中国纺织工程学会以及等机构的合作交流，积极参与国家纺织产品开发中心主导下的“产品技术创新联盟项目”，成功对接了多个产品开发新项目。与东华大学、武汉纺织大学等纺织专业院校签署了产学研合作协议，与青岛大学、天津工业大学、江南大学、苏州大学等纺织院校保持着良好的合作关系，并与赛得利、吉林化纤、中纺绿纤等纤维研发企业，利郎、金太阳、安踏等品牌客户，密切开展上下游企业协作，促进全行业协同创新和交流合作。

**认证标准及专利：**一种石墨烯改性纤维包芯弹力纱线及弹力面料的生产方法



**Product specification:**Cotton/Spandex/20%-80% graphene fiber

**Keywords:**Bacteriostatic and thermal

**Recommendation reasons:**The graphene-modified polyester fiber is blended with combed cotton to enhance the blending effect of the fiber through three-drawing strip mixing and cross-mixing. Graphene-modified polyester slivers are adopted to wrap around the cotton fiber combed slivers to ensure the bacteriostatic effect of the yarn; Roving quantification is optimized to appropriately reduce twist coefficient, the dispersion degree of the fibers in the floating area of the spun yarn is increased to enhance the covering effect of the core-spun yarn; the Spandex filament adopts 4.0 time-pre-draft to improve the rebound effect of graphene blended yarn.

**Scope of application:**Woven clothing, knitted sportswear

**Representing enterprises:**Weiqiao Textile Co., Ltd.; Brand - Weiqiao, Jijia Home Textiles, Xiangshang Sportswear

**Industry-university-research:**The Company has cooperated and exchanged with China Textile Information Center, National Textile Product Development Base, China Textile Engineering Society

and other institutions, actively participated in the "Product Technology Innovation Alliance Project" led by National Textile Product Development Base, and successfully joined several new product development projects. It has signed industry-university-research cooperation agreements with textile colleges such as Donghua University and Wuhan Textile University, and has maintained good cooperative relations with textile-competitive such as Qingdao University, Tiangong University, Jiangnan University and Soochow University. It has also cooperated closely with upstream and downstream enterprises with fiber R&D enterprises such as Sateri, Jilin Chemical Fiber Group Co., Ltd., and Greccell Co., Ltd. as well as brand customers such as Lilang, Golden Sun and Anta, to promote collaborative innovation, exchanges and cooperation in the whole industry.

**Certification, standards and patents:**A production method of graphene-modified fiber core-spun elastic yarn and elastic fabric

指标  
Indicators

纱线质量指标达到国标优等纱水平；CMC/石墨烯40SK纱线指标：条干CV%12.58%；细节1/56；粗节16/233；棉结18/105，CVb%2.0%；DR%18.0%；强力245.5CN；强力CV%7.5%；伸长率%6.5%；3mm毛羽49.0；与常规包芯纱相比较，石墨烯改性纤维包芯弹力纱线具有抑菌、远红外发热、促进微循环、防紫外线等性能。

Quality indicators of the yarn reach the national standard for superior yarn; CMC/graphene 40SK yarn indicators: evenness CV% 12.58%; nep 1/56; slub 16/233; cotton knot 18/105, CVb% 2.0%; DR% 18.0%; strength 245.5CN; strength CV% 7.5%; elongation% 6.5%; 3mm hairiness 49.0; compared with conventional core-spun yarn, the graphene-modified fiber core-spun elastic yarn is bacteriostatic, far-infrared heating, microcirculation-enhancing, and anti-ultraviolet and has other properties.

抑菌 PHBV 混纺紧赛纱

Bacteriostatic PHBV blended compact Siro-spun yarn



**产品规格：**70% 莫代尔 /30%PHBV；紧密赛络纺 50 英支

**关键词：**触感舒适 + 抑菌

**推荐理由：**该纱线采用国际知名兰精公司超细纤维素纤维和以植物淀粉制造的葡萄糖为主要原料的生物质抑菌纤维 PHBV 混纺而成，由该纱线制成的面料手感柔滑，在具备舒适的亲肤感和良好悬垂性的同时对白色念珠菌、金黄色葡萄球菌和肺炎克雷伯氏菌具有永久高效抑菌效果，符合 AAA 级纺织品抑菌标准。

**适用范围：**内衣

**代表企业：**无锡四棉纺织有限公司；品牌——球鹤

**产学研：**与无锡江南大学和香港理工大学有合作科研项目

**Product specification:**70% Modal/30% PHBV; compact Siro spinning 50s

**Keywords:**Comfortable touch + bacteriostatic

**Recommendation reasons:**The yarn is blended by the ultrafine cellulose fiber of the internationally renowned Lenzing Company and the biomass bacteriostatic fiber PHBV which takes glucose made from plant starch as the main raw material. The fabric made of this yarn feels smooth and has a comfortable and skin-friendly touch, good drapability, as well as a strong and permanent bacteriostatic effect against *Candida albicans*, *Staphylococcus aureus*, and *Klebsiella pneumoniae*. It meets the bacteriostatic standards for AAA textiles.

**Scope of application:**underwear

**Representing enterprises:**Wuxi No. 4 Cotton Mill Textile Co., Ltd.;Brand - Qiuhe

**Industry-university-research:**The Company has cooperative scientific research projects with Wuxi Jiangnan University and Hong Kong Polytechnic University.

指标  
Indicators

条干 CV% Evenness CV%	11.08%
强力 Strength	225cN
细节 nep	0 个 /KM
粗节 slub	12 个 /KM
棉结 cotton knot	24 个 /KM

## 精梳紧赛纺超柔纱

## Combed compact Siro-spun super soft yarn

**产品规格：**100% 原棉；紧密赛络纺 20 英支、32 英支、40 英支

**关键词：**低捻、高强

**推荐理由：**精梳紧赛纺超柔纱低捻高弹，纱线毛羽少，外观干净形态好，技术指标达到乌斯特公报 5% 水平，选用了优质长绒棉、皮马棉和细绒棉混棉，能达到用户需要的不同强力水平，有效解决了针织布面形态不饱和，布感不柔软，布面发硬这一问题，产品年产 4000 吨，市场销售形势好，价格高于同类形纱 20% 左右，利润高出同类纱 15% 以上。

**适用范围：**适用于高档服装面料

**代表企业：**扶沟县昌茂纺织有限责任公司（品牌——昌茂）

**产学研：**与中原工学院，周口师院建立了校企产学研共创基地，下游客户建立了战略合作伙伴

**Product specification:**100% raw cotton; compact Siro spinning 20s,32s,40s

**Keywords:**Low twist and high strength

**Recommendation reasons:**Combed compact Siro-spun super soft yarn has a low twist and high elasticity, low hairiness, clean appearance, and good shape, and its technical indicators reach the level of 5% in the Uster Statistics. It blends high-quality long-staple cotton, Pima cotton and fine-staple cotton, which can reach the different strength levels required by users, thus effectively solving the problems of unsaturated shape, non-softness, and hardness of the fabric. The product has an annual output of 4,000 tons, and the has great sales prospects on the market, with a price 20% higher and profit more than 15% higher than the peer product yarn.

**Scope of application:**Suitable for high-end clothing fabrics

**Representing enterprises:**Fugou County Changmao Textile Co., Ltd.; BraChangmao

**Industry-university-research:**The Company has established school-enterprise industry-university-research co-creation base with Zhongyuan University of Technology and Zhoukou Normal University, and established strategic partnerships with downstream customers.

## 高支转杯纯棉纱

## High-count rotor pure cotton yarn

**产品规格：**100% 棉；转杯纺

**关键词：**高支高品质转杯纺纱

**推荐理由：**挑战转杯纺高支纱线技术瓶颈，突破转杯纺纱的纱支上限，开发高支高品质转杯纺纱线。秉承转杯纺纱粗犷硬朗的风格，同时又具备高支纱的柔软和透气性，面料具有麻料制品的手感，又兼具棉制品的舒适度，适用于高端针织服装面料。

**适用范围：**高端针织服装面料

**代表企业：**利泰醒狮（太仓）控股有限公司（品牌——利泰醒狮）

**Product specification:**100% cotton; rotor spinning

**Keywords:**High-count high-quality rotor spinning yarn

**Recommendation reasons:**Challenging the technical bottleneck for rotor-spinning high-count yarn, the high count high-quality high-count rotor-spinning yarn is developed, which breaks through the upper limit of rotor-spinning yarn count. While maintaining the rough and tough style of rotor-spinning yarn, it also has the softness and breathability of high-count yarn. The fabric touches like flax products, and has the comfort of cotton products, making it ideal for fabrics of high-end knitted clothing.

**Scope of application:**High-end knitted clothing fabrics

**Representing enterprises:**LiTai XingShi (Taicang) Holdings Co., Ltd.; Brand - LiTai XingShi

		品种 Type	OEC50S/1K (11.7)	OEC60S/1K (9.7)
试验项目 Test item		单位 Unit		
重量 Weight	平均重量 Average weight	g/100m	1.184	1.022
	号数 Number	tex	12.2	10.5
捻度 Weight	捻系数 Twist coefficient	/	478	451
	捻度 Twist	T/10cm	139.8	145.0
条干 Evenness	条干 CV% Evenness CV%	%	16.22	16.72
	-50% 细节 -50% nep	个/KM PC/KM	137	212
	+50% 粗节 +50% slub	个/KM PC/KM	116	146
	+140% 棉结 +140% cotton knot	个/KM PC/KM	5832	5445
强力 USTER TENSOJET 4 Strength USTER TENSOJET 4	+200% 棉结 +200% cotton knot	个/KM PC/KM	881	762
	强力 CV ≤ Strength CVs	%	11.3	12.4
	平均强力 Average strength	cN	152.1	123.1
	断裂强力 Breaking strength	cN/tex	13.0	12.7
	伸长率 Elongation	%	5.7	5.5
	伸长变异系数 Variable coefficient of elongation	%	9.2	9.8

## 再生纤维素纤维转杯纱

## Recycled cellulose fiber rotor yarn

**产品规格：**100% 莱赛尔纤维

**关键词：**莱赛尔 + 转杯纱

**推荐理由：**莱赛尔纤维源于自然，纤维生产使用环保闭合的生产工艺，所用有机溶剂无毒无害，溶剂达 99.7% 以上循环利用。产品可生物降解，回归自然，美好演绎绿色循环。使用独特的技术路径及精密的过程控制，莱赛尔纤维可以很好地和各类纺织纤维混纺或者通过纯纺交织，创造出不同的面料风格和特性，广泛地应用于各类下游应用领域。纱线具有转杯纺纱线挺括、蓬松且透气性好的特点，也具有莱赛尔纱线的光泽与高强度。

**适用范围：**牛仔面料，高端男女装，家用纺织品

**代表企业：**林茨（南京）粘胶丝线有限公司



**Product specification:** Product specification: 100% Lyocell fiber

**Keywords:** Lyocell + Rotor yarn

**Recommendation reasons:** Lyocell fiber originates from nature. The fiber production adopts an environmentally-friendly closed production process, using non-toxic and harmless organic solvents, of which 99.7% or higher can be recycled. The product is biodegradable, and by returning to nature, it beautifully demonstrates a green cycle. Using a unique technical approach and precise process control, Lyocell fibers can be blended with various textile fibers or applied alone to create different fabric styles and characteristics, which are widely used in various downstream applications. The yarn has the crispiness, fluffiness, and good air permeability of rotor-spinning yarn, as well as the luster and high strength of Lyocell yarn.

**Scope of application:** Denim fabrics, high-end men's and women's clothing, and home textiles

**Representing enterprises:** Linz (Nanjing) Viscose Yarn Co., Ltd.

## 绢丝混纺高支纱

### Spun silk blended high-count yarn



**产品规格：**50% 莱赛尔 /25% 棉 /25% 绢丝；紧密赛络纺 100 英支

**关键词：**超细纤维素纤维 + 绢丝

**推荐理由：**该纱线采用国际知名兰精公司超细纤维素纤维、棉和天然绢丝蛋白纤维混纺而成，由该纱线制成的面料色泽光亮纯净，具有舒适滑爽、吸湿透气、挺括有型等特点，符合目前轻运动系列的流行趋势。

**适用范围：**男士 T 恤

**代表企业：**无锡四棉纺织有限公司；品牌——球鹤

**产学研：**与无锡江南大学和香港理工大学有合作科研项目

**Product specification:** Product specification:50% Lyocell/25% cotton/25% spun silk; compact Siro spinning 100s

**Keywords:** Superfine cellulose fiber + spun silk

**Recommendation reasons:** The yarn is blended with ultra-fine cellulose fiber from the internationally renowned Lenzing Group, cotton and natural spun silk protein fiber. The fabric made of this yarn is bright and pure in color, comfortable and smooth, moisture-wicking, breathable, crisp and stylish, etc., thus in line with the current trend of light sportswear series.

**Scope of application:** Men's T-shirts

**Representing enterprises:** Wuxi No. 4 Cotton Mill Textile Co., Ltd.; Brand - Qiuhe;

**Industry-university-research:** The Company has cooperative scientific research projects with Wuxi Jiangnan University and Hong Kong Polytechnic University.

## 再生纤维素纤维锦纶混纺纱

### Recycled cellulose fiber nylon blended yarn

**产品规格：**80% 莫代尔 /20% 锦纶

**关键词：**舒适 耐磨 功能

**推荐理由：**结合莫代尔、锦纶的优点，提高产品的服用舒适性、功能性及耐磨性能。锦纶纤维弹性好、蓬松，单独生产成网成条困难，与莫代尔混纺后可纺性提高。并条工序改造，解决锦纶生产中制条成形不良，明显减少成纱疵。开发多种不同比例、组份锦纶混纺系列产品，开拓锦纶的使用量。

**适用范围：**内衣、运动服饰

**代表企业：**无锡一棉纺织集团有限公司；品牌——TALAK

**产学研：**设有纺织研究院及研发车间，与东华大学、江南大学、哈工大等院校进行深度合作，拥有一批纺织学科及交叉学科的博士、硕士，以及具有丰富实践经验的技术人员。

**Product specification:** 80% Modal/20% nylon

**Keywords:** Comfortable, wear-resistant and functional

**Recommendation reasons:** The yarn combines the advantages of Modal and nylon to improve the comfort, functionality, and wear-resistance of the product. Nylon fiber is fluffy with good elasticity but is difficult to form sliver or web alone in the production process. After blending with Modal, the spinnability is improved. The doubling step sliver process is reformed to solve the poor sliver forming in nylon production and significantly reduce the finished yarn defects. A variety of nylon blended products with different proportions and components are developed to expand the use of nylon.

**Scope of application:** Underwear, sportswear

**Representing enterprises:** Wuxi No. 1 Cotton Mill Textile Group Co. Ltd.; Brand - TALAK

**Industry-university-research:** The Company has a textile research institute and a research and development workshop, and conducts in-depth cooperation with Donghua University, Jiangnan University, Harbin Institute of Technology, and other institutions. It has a group of doctors and masters in textile and interdisciplinary, as well as technical personnel with rich practical experience.



## 木棉混纺纱

## Kapok blended yarn



**产品规格：**60% 棉 /20% 木棉纤维 /20% 天丝；70% 棉 /30% 木棉纤维；80% 棉 /320% 木棉纤维；

**关键词：**光泽保暖天然抑菌

**推荐理由：**木棉纤维光泽好、保暖性好、祛螨防蛀，将木棉纤维与棉或天丝混纺，既可发挥木棉纤维特性，又可达到良好的成纱性能指标。产品的市场前景很好，现年产量可达350~450吨，年产能增长率约10%。

**适用范围：**① 中高档服装。针织内衣、绒衣、袜子、机织休闲外衣、牛仔服装等。② 家纺面料、床上用品等。

**代表企业：**忠华集团有限公司；品牌——忠华牌。

**产学研：**与广东纺织职业技术学院、广州大学服装学院、江南大学、武汉纺织大学等科研单位建立了紧密合作关系。与国内知名牛仔布生产企业形成了长期战略合作伙伴。

**认证标准及专利：**专利：清梳联设备与木棉混纺方法 CN201910627945.9

**Product specification:**60% cotton/20% kapok fiber/20% Tencel; 70% cotton/30% kapok fiber; 80% cotton/320% kapok fiber;

**Keywords:**Glossy, warm-keeping, and naturally bacteriostatic

**Recommendation reasons:**Kapok fiber is glossy with good warm-keeping, anti-mite and mothproof properties. Blending kapok fiber with cotton or Tencel can not only present characteristics of kapok fiber but also achieve well finished yarn property indicators. The market prospect of the product is very good, with a current annual output of 350-450 tons, and an annual production capacity growth rate of about 10%.

**Scope of application:** (1) Mid-to-high-end clothing. Knitted underwear, fleece, socks, woven casual outerwear, denim clothing, etc. (2) Home textile fabrics, bedding, etc.

**Representing enterprises:**Zhonghua Group Co., Ltd.; Brand - Zhonghua brand.

**Industry-university-research:**The Company has established close cooperation with Guangdong Polytechnic, College of Textile and Garment of Guangzhou University, Jiangnan University, Wuhan Textile University and other scientific research institutes, while also forming a long-term strategic partnership with well-known domestic denim manufacturers.

**Certification, standards and patents:**Patent: A blowing-carding unit and a kapok blending method

## 指标

检验检测项目 (计量单位) [样品识别] Test item (measurement unit) [Sample identification]	测试方法 Test method	标准值及公差 Standard value and tolerance	检验检测结果 Test Results	判定 Conclusion
抗菌效果 (AAA级) Antibacterial effect (AAA grade)	FZ/T73023-2006 附录 D 振荡法 样品经洗涤 50 次 Appendix D Oscillation Method The sample is washed 50 times	金黄色葡萄球菌抑菌率 ≥ 80% inhibition rate of Staphylococcus aureus ≥80%	96.23%	符合 Pass
		大肠杆菌抑菌率 ≥ 70% inhibition rate of Escherichia coli ≥70%	86.80%	
		白色念珠菌抑菌率 ≥ 60% Candida albicans ≥60%	88.00%	
防螨性能 (趋避率) Anti-mite performance (avoidance rate)	GB/T24253-2009 9.1 趋避法 Avoidance method	趋避率 ≥ 60% avoidance rate ≥60%	趋避率 70.87% avoidance rate 70.87%	样品具有防螨效果 The sample has anti-mite effect

## 段彩段弹混纺花式纱

## Segmentally colored and segmentally elastic blended fancy yarn



**产品规格：**5%-10% 舒弹丝纤维

**关键词：**生物基弹力短纤

**推荐理由：**在复合式段彩纱技术上进行纱线创新，将段彩纱生产技术与生物基弹力短纤（舒弹丝）应用相结合，纱身使用棉纤维，段彩处使用生物基弹力短纤，利用两种材质的回弹及染色性能差异，可形成纱线的段彩段弹效果。

**适用范围：**家纺面料及服装面料

**代表企业：**魏桥纺织股份有限公司；品牌——魏桥牌棉纱、嘉嘉家纺、向尚运动

**产学研：**与中国纺织信息中心、国家纺织产品开发中心、中国纺织工程学会以及等机构的合作交流，积极参与国家纺织产品开发中心主导下的“产品技术创新联盟项目”，成功对接了多个产品开发新项目。与东华大学、武汉纺织大学等纺织专业院校签署了产学研合作协议，与青岛大学、天津工业大学、江南大学、苏州大学等纺织院校保持着良好的合作关系，并与赛得利、吉林化纤、中纺绿纤等纤维研发企业，利郎、金太阳、安踏等品牌客户，积极开展上下游企业协作，促进全行业协同创新和交流合作。

**认证标准及专利：**专利：一种段彩段弹纱线及其生产方法



## 再生纤维素纤维绢丝混纺纱

### Recycled cellulose fiber spun silk blended yarn

**产品规格：**80% 莱赛尔 /20% 绢丝

**关键词：**触感舒适

**推荐理由：**莱赛尔是再生纤维素纤维，绢丝是蛋白质纤维，开发莱赛尔与绢丝混纺纱，将两种纤维特性合二为一，成纱具有较高的强力、良好的吸湿性、手感柔软细腻、色泽亮丽，成品服饰面料具有更好的服用性能，改善绢丝褶皱，产品绿色时尚。清花工艺流程改造，采用预混处理，提高纤维混合效果以及可纺性能。优选各道工艺参数，细纱选用配套的皮辊，解决绢丝生产过程中的卷绕问题，络筒优选打结器，提高捻结效率与接头质量。开发多种不同比例、组份绢丝混纺系列产品，满足客户个性化需求。

**适用范围：**服装、家纺类

**代表企业：**无锡一棉纺织集团有限公司；品牌——TALAK

**产学研：**设有纺织研究院及研发车间，与东华大学、江南大学、哈工大等院校进行深度合作，拥有一批纺织学科及交叉学科的博士、硕士，以及具有丰富实践经验的技术人员。

**Product specification:**80% Lyocell/20% spun silk

**Keywords:**Comfortable touch

**Recommendation reasons:**Lyocell is a recycled cellulose fiber, and spun silk is a protein fiber. The Lyocell and spun silk blended yarn is developed to combine the characteristics of the two fibers. The finished yarn has high strength, good moisture absorption, soft and delicate touch and bright color, the produced clothing fabric has better wearability with less wrinkling of spun silk and is green and fashionable. The reform of the cotton-cleaning process adopts pre-mixing treatment to improve the fiber mixing effect and spinnability. The various process parameters are also optimized, selecting matching rollers for spun yarn for the winding problem in the spun yarn production process, and optimizing the knotter for spooling to improve the efficiency of twisting knot and the quality of joints. A variety of spun silk blended products with different proportions and components are developed to meet the individual needs of customers.

**Scope of application:**Clothing, and home textiles

**Representing enterprises:**Wuxi No.1 Cotton Mill Textile Group Co. Ltd; Brand - TALAK

**Industry-university-research:** The Company has a textile research institute and a research and development workshop, and conducts in-depth cooperation with Donghua University, Jiangnan University, Harbin Institute of Technology, and other institutions. It has a group of doctors and masters in textile and interdisciplinary, as well as technical personnel with rich practical experience.

**Product specification:** Product specification:5%-10% stretchable silk fiber

**Keywords:**Bio-based elastic staple fiber

**Recommendation reasons:**The yarn innovation is carried out based on composite segmentally colored yarn technology, combining segmentally colored yarn production technology with the application of bio-based elastic staple fiber (stretchable silk), using cotton fiber in the yarn body, and bio-based elastic staple fiber in colored segments so that the resilience and the difference in dyeing properties of the two materials can achieve the segmentally colored and segmentally elastic effect of the finished yarn.

**Scope of application:**Home textile fabrics and clothing fabrics

**Representing enterprises:**Weiqiao Textile Co., Ltd.; Brand - Weiqiao Brand Cotton, Jiajia Home Textiles, Xiangshang Sportswear

**Industry-university-research:**The Company has cooperated and exchanged with China Textile Information Center, National Textile Product Development Base, China Textile Engineering Society and other institutions, actively participated in the "Product Technology Innovation Alliance Project" led by National Textile Product Development Base, and successfully joined several new product development projects. It has signed industry-university-research cooperation agreements with textile colleges such as Donghua University and Wuhan Textile University, and has maintained good cooperative relations with textile-competitive such as Qingdao University, Tiangong University, Jiangnan University and Soochow University. It has also cooperated closely with upstream and downstream enterprises with fiber R&D enterprises such as Sateri, Jilin Chemical Fiber Group Co., Ltd., and Grecell Co., Ltd. as well as brand customers such as Lilang, Golden Sun and Anta, to promote collaborative innovation, exchanges and cooperation in the whole industry.

**Certification, standards and patents:**a kind of segmentally colored and segmentally elastic and its production method

#### 指标 Indicators

纱线质量指标达到国标一等纱水平；CM40SW+（70% 舒弹丝 +30% 细旦涤纶）段彩段弹：纱线重量不匀率 1.8%，捻度不匀率 3.0%，纱线强力 245.7CN，彩长 3—5cm，彩距 40—120cm，给彩量 0.7；舒弹丝 / 细旦涤纶纤维含量 8%

The yarn quality indicators reach the national standard of first-class yarn; CM40SW+ (70% stretchable yarn + 30% microdenier polyester) segmentally colored and segmentally elastic yarn: the yarn weight unevenness rate is 1.8%, twist unevenness rate is 3.0%, yarn strength is 245.7 CN, color segment length is 3-5cm, color segment distance is 40-120cm, color segment quantity is 0.7; the content of stretchable silk/microdenier polyester fiber is 8%



## 可染丙纶纤维混纺纱

### Dyeable polypropylene fiber blended yarn



**产品规格：**70% 再生纤维素纤维（粘胶）/30% 丙纶纤维；90% 粘胶 /10% 丙纶纤维；95% 粘胶 /5% 丙纶纤维；80% 天丝 /20% 丙纶纤维；紧密纺 30 英支、24 英支、40 英支

**关键词：**触感舒适、可染丙纶纤维

**推荐理由：**应用可染丙纶纤维，结合环锭纺、紧密纺技术、细纱集体落纱技术，开发生产了丙纶与粘胶、天丝等混纺高端纱线，手感舒爽、吸湿快干、强度高、毛羽少、条干均匀度好，应用其制成的纺织品，其针织物纺织品布面光洁，轻薄、柔软、抗起毛起球性能优异、顺滑、耐磨、亮丽。目前已实现了批量生产，产品利润率达 9.1%。

**适用范围：**高档 T 恤、运动装、内衣、工装等

**代表企业：**南通双弘纺织有限公司；品牌——双弘

**产学研：**与东华大学、江南大学及原料企业、同行行业及下游应用客户开展广泛的合作，协同推进新型纤维材料的应用与推广。

**Product specification:** Product specification:70% recycled cellulose fiber (viscose)/30% polypropylene fiber; 90% viscose/10% polypropylene fiber; 95% viscose/5% polypropylene fiber; 80% Tencel/20% polypropylene fiber; compact spinning 30s, 24s, 40s

**Keywords:**Dyeable polypropylene fiber with a comfortable touch

**Recommendation reasons:**The dyeable polypropylene fiber is used to combine ring spinning, the compact spinning technology, and the spun yarn collective doffing technology, and develop and produce the high-end blended yarn with polypropylene, viscose, and Tencel. It has comfortable touch, moisture-absorption, quick-drying, high strength, less hairiness, and great evenness. The textile produced is light, soft, smooth in surface, great wear-resistant, with excellent anti-pilling performance and bright color. Mass production has been achieved, with a product profit rate of 9.1%.

**Scope of application:**High-end T-shirts, sportswear, underwear, workwear, etc.

**Representing enterprises:**Nantong Double Great Textile Co., Ltd.; Brand - Double Great

**Industry-university-research:**The Company has carried out extensive cooperation with Donghua University and Jiangnan University as well as raw material companies, peer industries, and downstream application customers to promote the cooperative application and popularization of new fiber materials.

#### 指标

品种 Type	条干 cv% Evennesscv%	-50% 细节 -50% Nep	+50% 粗节 +50% Slub	+200% 棉结 +200% Cotton knot	毛羽 H Hairiness H	强力 CN Strength CN
粘胶 / 丙纶 95/5 30 支 Viscose/ polypropylene 95/5 30s	11.09	0	5	21	5.93	317.5
粘胶 / 丙纶 90/10 24 支 Viscose/ polypropylene 90/10 24s	10.37	0	8	23	6.28	354.5
粘胶 / 丙纶 70/30 24 支 Viscose/ polypropylene 90/10 24s	11.12	0	10	31	5.43	355.5
天丝 / 丙纶 80/20 40 支 Tencel/ polypropylene80/20 40s	12.28	1	13	29	4.25	227.9