

Asia's Only Regional Bilingual Magazine for the Nonwovens Industry

NonwovensAsia

亚洲非织造材料工业

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Application: Needle Punching, spunlace, air through fabric



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Drying zone: 3M×n unit
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Production speed: up to 120M/min

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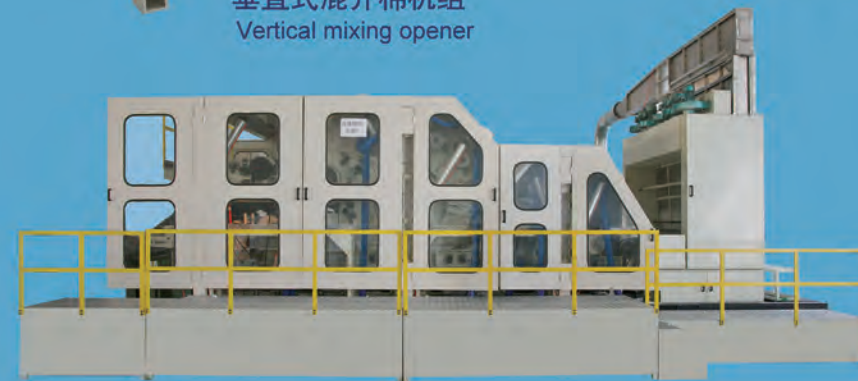
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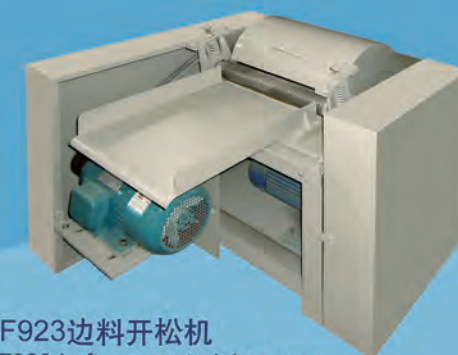
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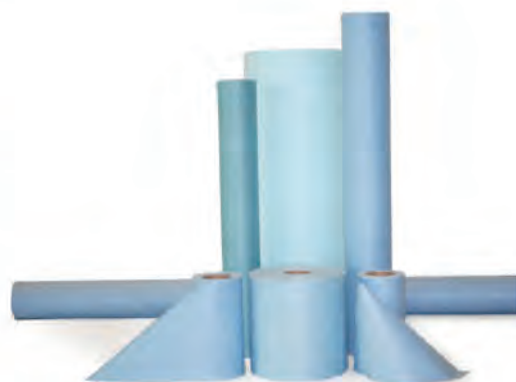
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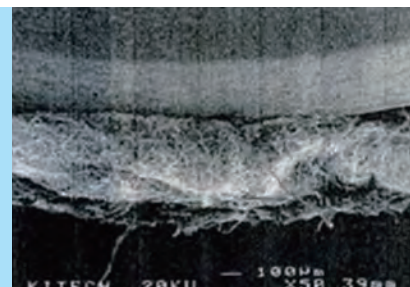
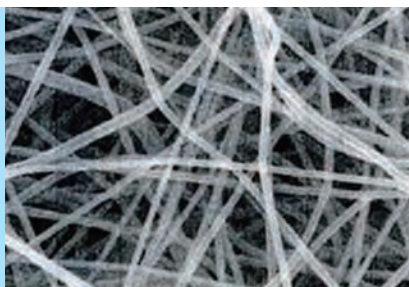
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CONTENTS

Industry News	The Brief Introduction about INDEX'2017; ANDRITZ to supply a complete spunlace line to Zhejiang Bestlink Nonwoven Technology etc.	3
行业新闻	INDEX'17 欧洲国际非织造材料展览会报道; 安德里茨提供浙江百联无纺科技有限公司一条完整水刺生产线等	30
Market News	Sandler at Techtextil 2017 – At home in the world of nonwovens; Madaline - New nonwoven product from Mogul; Nonwovens leader AVGOL underlines growth plans with multi-million dollar ISRAEL site investment etc.	9
市场动态	Sandler在Techtextil 2017展会上展示—在家里的非织造布世界; Madaline-来自Mogul的新型非织造产品; 无纺布龙头企业AVGOL强调在以色列生产厂投资数百万美元增长计划的重要性等	34
Market Trends	First Quality promotes Dri-Fit technology; Indian diaper market expecting growth; mBRACE™ softening additives offer comfy options to nonwovens producers etc.	13
市场趋势	致优推进其Dri-Fit技术; 印度纸尿裤市场有望发展; mBrace™软化添加剂为无纺布生产商提供了舒适的选择等	37
Area Report	2016 Japan nonwovens production; 2016 Korea nonwovens production	19
地区报告	2016年日本非织造产量; 2016年韩国非织造产量	42
Technology News	Up-graded Nano Fiber Tec. & It's new applications	20
技术信息	纳米纤维技术的进展及新应用	43
Technical Trends	Thailand looks to the future	26
技术趋势	泰国未来展望	48
Product News	Suominen introduces revolutionary designer series patterns for nonwovens for wipes etc.	28
产品集锦	Suominen为擦拭非织造布推出革命性设计系列图案等	50



Reader Enquiry Form/Advertisers' List

51

读者查询表及广告商索引

Subscription Form

52

订阅表

Nonwovens Asia Magazine-Asia's Only Regional Bilingual Magazine for the Nonwovens Industry
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- ◆ 立体跨越式深度发展，横态完善医卫用非织造产品成品下游生态链，纵态融合商贸+教育+旅游等关联产业
- ◆ 重点面向国内外医卫用非织造及纸品优质企业，同时向机械装备制造、高端工业环保滤材、汽车内饰配件等领域拓展

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Business News

The Brief Introduction about INDEX'2017

INDEX'2017 was taken place at Geneva, Switzerland, April 4-7. The China Nonwoven Technical Association commissioned Shanghai CNTA Technology Co. Ltd. to organize a delegation of 52 exhibitors and visitors for attending the exhibition.

INDEX 2017 European international nonwovens exhibition overview

INDEX organized by the European Disposables and Nonwovens Association (EDANA), is conducted every three years. Bringing together key players from every dimension of the innovative world of nonwovens, INDEX™ is the industry's largest global meeting place. More than 12,500 visitors from around 100 countries are expected to descend on Geneva over the next four day to seek competitive insights, learn the latest technologies, and take advantage of those all-important networking opportunities. A huge array of products and services will be presented by over 650 exhibitors (an increase of more than 10% on the previous edition in 2014), from 41 countries, across more than 22,000 sq m net of stand space. INDEX™17 will be the 12th consecutive edition of the exhibition to be held in Geneva and will be accompanied by a compelling programme of activities, including special events, interactive workshops and training courses.

Nonwoven materials market overview

At present, the global nonwovens market has formed the three pillars of the America, Europe and Asia. The proportion of nonwoven materials in North America, Europe and Asia accounted for more than 90% of global output. In 2016, nonwovens production in North America and Europe increased slightly, producing 2.27 and 2.38 million tones respectively. Japan's nonwovens production fell 0.6 percent year on year, to 34 0000 tons in 2016. South Korean nonwovens grew 4.2 percent year on year, to 225 000 tons. India and Indonesia in 2016 nonwovens production reached 365 000 tons and 81 000 tons respectively. China as the largest producer, consumer and exporter of nonwovens, the production of nonwoven materials continued to increase with double digit growth in 2016 at an annual growth rate of 10.85%, to 3.26 million tons and

higher than GDP growth rate.

According to Pierre Wiertz, general manager of EDANA, EDANA™ 17 will see a return of nonwoven producers for industrial and durable applications, from filtration to automotive and building/construction. Filtration media demand stems from growing awareness of improved air pollution control, indoor air quality and water purity across the world. EDANA states that filter media is one of the fastest growing end-uses of nonwovens globally and in each continent (witnessing over 9% average annual growth both before and after the 2008 financial crisis).

INDEX™ 17 AWARDS

The opening morning of INDEX™ 17 saw its prestigious Awards ceremony take place, which honored the best innovations, products and ethical practices across the nonwovens supply chain.

> The first award of Nonwovens roll goods category - Berry Plastics' NuviSoft

NuviSoft proprietary meltspun technology combines a unique filament profile geometry with a soft bond pattern for enhanced softness, allowing for enhanced coverage at lighter weights, lower air permeability, denser winding and improved printing.

> The second award of Finished or composite products made from, or incorporating nonwovens category - Glatfelter's Dreamweaver Gold 20 microns

This nonwoven separator for ultra-safe lithium ion batteries will provide better cycle life in applications including energy storage for solar cells, electric vehicles and portable



The INDEX™17 award winners

Business News

electronics. The technology comes after a series of investments in the company.

> The third award of Raw materials or components for special relevance to nonwovens industry and related converted products category - Magic's Spongel

The Spongel superabsorbent polymer (SAP) is made from entirely renewable resources, and offers "the highest level of absorption and retention of liquids available for bio-based materials."

> The fourth award of Innovation in machinery of special relevance to the nonwovens industry category - GDM's Rear Wing Zero Waste solution

Its upgraded baby diaper manufacturing line seeing kit saves on raw material usage, while the all-new design includes linear motion technology for side shifting without replacing the mechanical cam and the possibility to automatically correct the rear position.

> The fifth award of Sustainable products category - Hassan Group's Self Sufficient Research Tents

The fabrics provide comfort through improved heat and sound insulation, as well as flame retardancy, breathability and antibacterial properties

> The sixth award of Sustainable process or management practice category - Suominen Corporation's Blind Hiring recruitment process

The recruitment process to increase diversity in the workforce and ensures equal opportunities for applicants of all genders, ethnicities and ages.

During the exhibition, the leaders of CNTA visited specially Suominen Corporation, Berry Global Inc, Freudenberg Performance Materials, Ahlstrom Corporation, ANDRITZ, DILO, REIFENHÄUSER, Dalian Ruiguang, Xinlong Holding (Group), FOSHAN NANHAI BEAUTIFUL, Kingsafe, NBOND, Winner Medical, Shan Dong Yongxin, CHTC JiaHua, Changshu Feilong, HANGZHOU NEW YUHONG MACHINERY, Shanghai Hawk Filter, Hongda Research Institute and other domestic and foreign enterprises' booths. It is worth mentioning that Reifenhäuser Reicofil has launched its new RF5 technology, an

intelligent system, which looks to drive the nonwovens industry towards industry 4.0. The RF5 line will be installed in Turkey, with 6 beams and 5.2m wide.

According to the content showed by the exhibitors, it can be seen that nonwovens are still moving towards functional, cost-effective, safe, environmentally friendly and sustainable development in all areas of application.

Filtrex 17 Conference

For the very first time, Filtrex™ Conference was held in the Palexpo Congress Centre, adjacent to INDEX™, from 5-6 April.

5th April, Keynote - Prof. Nino Künzli: "Air Pollution and Health: Challenges and Opportunities for Policymakers, Citizens, and the Industry" Deputy director, Swiss Tropical and Public Health Institute Dean, Swiss School of Public Health (Switzerland)

6th April, Keynote - Adrian Wilson: "The global filtration market and its importance for nonwoven media: An analysis of the industry's structure leading companies and their vertical integration and innovation power " Editorial consultant and analyst, Sustainable Nonwovens & BCC Research (UK and US)

Session 1: Health effects of fine and ultra-fine particles on humans

Session 2: Standardization

Session 3: Quality assurance and testing

Session 4: Fibres for filtration media

Session 5: Application oriented solutions

Session 6: Innovations in nonwoven filtration media

Filtrex Conference and tabletop exhibition were highlight future growth in the filtration area and bring together expert attendees, from technical specialists and business management, to test and research institutes.

Filtrex™ Innovation Award

The Filtrex™ Innovation Award was presented during the Filtrex™ Dinner Party. The ceremony was being staged to recognize the efforts of all manufacturers of nonwoven-based filtration products/elements, and to celebrate their continuous efforts for

Business News

excellence and innovation.

Nominees, in alphabetic order, were as follows: Ahlstrom Tampere - Ahlstrom Statguard; Europlasma - Nanofics; Freudenberg Filtration Technologies - microair blue; Johns Manville - three-layer hybrid filter media; and Sandler - sawascreen enAIRsave. The winner was receive a specially commissioned trophy featuring an artist's view of a filter media performance.

Tabletop exhibition

Filtrex was also include a tabletop display providing producers, converters of filter media and equipment suppliers with the opportunity to showcase their offerings, keeping customers and potential clients up-to-date with their products and services. The tabletop area was be open throughout the conference and accessible by all INDEX™ visitors and exhibitors.

A Series of three half-day seminars centred on nonwoven megatrends

*** On the 4th, April afternoon's Transportation Sector Seminar the topic was "China is globalization drive", Adrian Wilson discussed China's influential position in the automotive interiors market.

In December 2016, Shanghai Shenda, a state-owned company listed on the Shanghai Stock Exchange, announced that via a UK affiliate, it was acquiring a 70% stake in the soft trim and acoustics operations of International Automotive Components (IAC). The business consists of 21 manufacturing facilities and four technical centers worldwide and will be run as a joint venture in which IAC retains a 30% stake, with anticipated annual sales of over US\$ 1 bn from the supply of floor carpets, acoustic insulation, package trays and trunk trim. Commenting on the deal, Yao Ming Hua, chairman of Shanghai Shenda, said: "This new JV will transition Shenda from a regional Chinese soft trim and acoustic products manufacturer to a global automotive industry supplier. It will provide access to both the European and North American markets, complementing our current strong footprint in China." Shanghai Shenda mainly engages in the manufacturing of automotive interiors and other industrial textiles, with approximately 29 subsidiaries

across China. It's one of the country's largest automotive interior suppliers, providing soft trim and acoustic products to almost every global OEM.

YFAI - Yanfeng Automotive Interior

Meanwhile, up until 2012, revlichigan-headquartered Visteon was a significant supplier of interior systems, but then transferred the majority of its interiors business to a 50/ 50 joint venture company, Yanfeng Visteon Automotive Trim Systems (YVF), operated with its Chinese partner, Huayu Automotive Systems (HASCO). In December 2013, Visteon then sold its 50% ownership of YVF to HASCO. In July 2015, Johnson Controls of Milwaukee, Wisconsin - another US leader in this sector - announced that it would also spin-of' its automotive interiors business into a joint venture with Yanfeng, to be named Yanfeng Automotive Interiors (YFAI). The new YFAI business can draw on a wealth of fabric and related technology innovation that has been pioneered by Johnson Controls in North America and Europe, and also by the companies that have been integrated into it in recent years, notably the French Michel Thierry Group.

Headquartered in Shanghai, YFAI now has more than 140 manufacturing and technical centers in 20 countries and employs over 28,000 people globally.

These moves by Shanghai Shenda and Yanfeng can be viewed as representing a new era in the globalization of the automotive industry. Prior to them, China hasn't had a single Tier I supplier with direct access to car manufacturers outside Asia, and even within China, access to non-domestic brands has been largely via joint venture partnerships with established overseas players. It's fitting, given China's leading position in textiles and nonwovens that this new level of internationalism in the automotive industry should begin with the soft trim and acoustics sector. And nonwovens are becoming increasingly important within it, primarily as a result of the need to reduce the weight of vehicles in order to cut emission levels to meet new legislation.

In 2012, the new US CAFE standards were

Business News

announced, requiring car manufacturers to raise the average fuel efficiency of light-duty vehicles to 54.5 mpg by 2025. The US Environmental Protection Agency (EPA) has calculated that this programme will save approximately four billion barrels of oil and reduce greenhouse gas emissions by two billion metric tons for the vehicles that are produced between 2017 and 2025. Manufacturers face a steep challenge, however - the latest estimates put the average fuel economy of new US cars closer to 25 mpg.

Meanwhile, the Euro VI emissions standard - which came into force last year - aims to make new European cars and vans cleaner by lowering exhaust emissions. The updated standard imposes a further, significant reduction in nitrogen oxide emissions from diesel engines - a 67% reduction compared to the previous Euro V - and establishes similar standards for petrol and diesel vehicles.

China too, plans to implement emissions standards modeled on Euro VI, starting in major cities in 2018. Lighter weight nonwovens are consequently achieving success in numerous areas through replacing other materials - from metals to leather and heavier conventional textiles, to plastics and foams - across global vehicle platforms.

The established Tier I manufacturers of nonwoven-based components in Europe, North America and Japan are still seeing plenty of opportunity within China. Between 2006 and 2015, for example, International Automotive Components itself has opened no less than 16 new plants within China. France-headquartered Faurecia is another leading Tier I manufacturer of seating, interiors and other car components which has built a solid presence in China. By 2014, it had 39 plants and four R&D centers in the country employing a total of 12,800 people. This year, following further investments, the company will employ just under 17,000 people in the country.

Japan naturally has a huge stake in manufacturing operations within its neighboring country, and of the 18 key manufacturing operations now listed by

Toyota Boshoku within China, 16 were established after the year 2000 and six of them since 2012. As a key interiors and components supplier to Toyota, Aichi, Japan-headquartered Toyota Boshoku, with annual sales of over US \$ 10bn, has experienced rapid global growth over the past two decades, in parallel to the success of the Japanese car brand.

Meanwhile, Autoneum, the Swiss-headquartered leader in acoustic and thermal management materials, will open its seventh plant in the country this summer, in Yantai, Shandong. It will produce an annual 25,000 inner dashes and carpet systems in series. As part of the implementation of sustainable production processes at all Autoneum locations, production waste in the form of polyester or mixed fibre nonwovens will be recycled and re-used in the manufacture of components at the Yantai plant.

Establishing a base in China has recently proved imperative for Borgers, which bases its entire range of products on nonwovens. Based in Bocholt, Germany, Borgers celebrated its 150th anniversary in 2016 at a record point in its development, with a new sales record of €765m achieved for 2015 and the highest employee count in its history. In 2012, the company opened its first plant in China, in Ningbo, Zhejiang, to make nonwoven trim components. In the following year a second Borgers plant was established in Langfang, Hebei, to supply Triflex trim and carrier components for Mercedes. In 2014, a third Borgers plant was established, marking very rapid entry into the market. This plant, in Shenyang, Liaoning, is now manufacturing nonwoven wheel arch liners, undershields and rear seat trims for BMW.

*** On the 5th, April afternoon's Medical Nonwovens Forum, Adrian Wilson reported on how wearable technologies and e-textiles are now beginning to make inroads in the absorbent hygiene and medical sectors. Smith & Nephew, the London-headquartered leader in wound care and related medical technologies, with 2016 sales of approaching US \$4.7bn, announced it would make a strategic investment in Leaf Healthcare, a developer of a unique single-use wireless patient monitoring system for pressure ulcer and injuries prevention. In a separate development for the feminine care sector,

Business News

a smart female incontinence product called Carin, developed by the Netherlands - headquartered LifeSense Group, has recently been attracting innovation awards and gaining considerable attention. This is a wearable technology which enables women to monitor and self-manage their condition in the privacy of their home and during their everyday lives. It is chiefly centred on exercise of the pelvic floor muscles, which is regarded by specialists as a first - line treatment for urinary incontinence - a condition suffered by as many as one in three women after pregnancy. Studies have shown up to a 70% improvement in symptoms of stress incontinence across all age groups following appropriately and consistently performed pelvic floor exercise.

Carin motivates and shows the progress of pelvic floor training via a wearable sensor and app. The sensor is worn in the absorbent protective underwear that is washable and reusable.

*** On the 6th, April afternoon's, Geotextiles Sector Seminar, Andy Rhodes made a presentation on "Geosynthetics boost sustainable development" in the branch of geosynthetic materials. According to Market Report of Grand View Research, Asia-Pacific region for the global geosynthetics market contributed 40%. EDANA released the information, the annual sales of nonwoven geotextile material of 750 square kilometers that is equivalent to 85,000 football field. 60% nonwoven geotextile material for road construction.

Today, 70% of road construction uses nonwovens; it is equivalent to reduce 4.8 million tons of CO₂ emission. If all EC road construction uses nonwovens, CO₂ emissions will decrease 6.8 billion tons. The use of nonwovens is not only beneficial to the environment, but also much cheaper than the traditional gravel material.

The cost of using gravel material is between €15 and € / m² and sustainable nonwovens geotextile material is only €15-30 / m².

The Dr. Russell Jones president, of IGS made the speech about the contribution of

nonwoven geotextile materials to the global sustainability agenda. The IGS maintains that up to 50% current CO₂ emission in the world are related to infrastructure development. Nonwoven geotextiles used in infrastructure help achieve longer road lives, protect the environment, control surface erosion, enable improved water conservation and play a key role in reducing the sector's carbon footprint. (Xiang Yang, CEO of ANFA working committee)

Indonesia Nonwoven Association (INWA) INDOINTERTEX exhibition 2017 & Nonwoven seminar series (NSS) III

Jakarta, Indonesia - INWA for the first time exhibited at the largest textile exhibition in Indonesia , Indo Intertex 2017. INWA, as a newly established association, wished to introduce the existence of INWA as the only association that specially support Nonwoven industry in Indonesia. Many members of INWA participated in INWA booth and maximize this opportunity by displaying various nonwoven products for different applications.

INWA Exhibition member participant list :

- PT. Anugrah Prima Perdana
- PT. Eternal Gelora Putera
- PT. Gerindo Dwidaya Manunggal
- PT. Hadtex
- PT. Hatech Nonwovenindo
- PT. Kuralon Indah Sejahtera
- PT.Lani Teduh Sumber Indah
- PT.Pulcra Chemicals Indonesia
- PT.Superbtex

INWA together with PERAGA EXPO organized a successful and informative full day seminar with special theme: "Dynamic Nonwoven Technology and Opportunities". This seminar was held in conjunction with Indo Intertex 2017 Exhibition.

With a comprehensive seminar program and networking activities to encourage interaction between industry players, education institutions and government bodies, INWA event have been acknowledged by nonwoven players as an important event for their businesses.

Audience response was very positive both for

INDUSTRY NEWS



Opening Ceremony of Nonwoven Seminar Series by Mr. Billy Hidjaja as chairman of INWA, Introducing of INWA Committee: Mr. Gerd Wagner as field coordinator of foreign affairs, Mr. Albert Arthur as Field coordinator of Domestic affairs, And Mr. Hengky Lau as Secretariat



INWA Committee with all key note speakers that have been represented their presentation at the seminars



Visitors who came to INWA Booth to see about all products that all member's produce and displayed at the booth

the exhibition and also for seminar. With total audience up to 40 visitors per day to INWA booth and + 150 attendees for the seminars, ranging from nonwoven manufacturer, machinery suppliers, textile technical school, ministry of industry representative and many others.

Six key note speakers delivery seminar with variety topics:

- 1) Mr. Jacques Prigneaux, EDANA, Market analysis and economic affairs director "Development of the Nonwoven Industry, a Europe and global prospective"
- 2) Bapak Dandung Sri Harninto, PT. Geoforce Indonesia, Direktur Operasional "Application of Nonwoven Geotextile for Indonesia Infrastructure Development Project"
- 3) Mr. Xiang Yang, ANFA ASIA, CEO of ANFA working committee "The Present & Trend of Filtration Nonwovens Industry"
- 4) Mrs. Hiroko Makihara, Daiwabo Co., Ltd. "Nonwoven For Hygiene Applications"
- 5) Mr. Shigeki Tanaka, Toyobo Co., Ltd, General Manager of Nonwoven Dept. "Nonwoven technology development"
- 6) Mr. Chen Hong Khun, Hsieh Ray Filament Co., Ltd, President of Hsieh Ray Filament Co. Ltd. "Nonwoven Market Updates in Taiwan"



The Atmosphere of the Audience of Nonwoven Seminar Series III

INWA Members were very impressed with this Exhibition and look forward to participate in similar event in the near future. Expectation for the next event including more display of nonwoven products, more discussion about latest nonwoven technologies, more segmented discussion about nonwoven application in various field success agriculture, automotive, hygiene, building construction material, geotextile, etc.

ANDRITZ to supply a complete spunlace line to Zhejiang Bestlink Nonwoven Technology

Graz, March 13, 2017. ANDRITZ Nonwoven, part of international technology Group ANDRITZ, has received an order from

Zhejiang Bestlink Nonwoven Technology Co., Ltd, China, to supply a complete crosslapped spunlace line - from opening/blending to the dryer. Start-up of the line, which has a working width of 3.6 m, is scheduled for the 4th quarter of 2017. The new nonwovens line will have an annual capacity of 5,400 tons for production of wipes and hygiene products.



▲ ANDRITZ neXlace spunlace aXcess line in crosslapped configuration

The scope of supply includes delivery of two aXcess cards, a P430 crosslapper, a JETlace Advantage spunlace unit, as well as a neXdry Advantage dryer.

With this new order, ANDRITZ is once again confirming its position as a proven and renowned supplier of complete systems for the global nonwovens market. ANDRITZ provides customized solutions that take into account individual capacity and technology needs from customers around the globe.

Huaфон microfiber orders 10 lines from DiloGroup

Huaфон Microfiber Co. Ltd. has placed orders for a total of 10 complete, most advanced and high capacity needling lines with DiloGroup for its new plant in Qidong, Jiangsu Province, China since 2015.

All these lines consist of DiloTemafa high capacity blending systems, DiloSpinnbau special card feeding systems with Twinflow for very homogenous flock matt, high capacity carding machines., DiloMachines high speed crosslappers with special air-guide system for the best layering performance with precise web edges as well as numerous DiloMachines needle looms with Hyperpunch technology. All lines are equipped with CV1 system for the best uniformity towards end product.

The first 6 lines are already in production, the next 2 lines are being installed at site, and the

>>> next 25

Market News

Sandler at Techtextil 2017 – At home in the world of nonwovens

At this year's Techtextil exhibition, Sandler AG invites visitors to a garden of nonwoven novelties at no. D54: A veritable bouquet of high-tech materials for acoustic insulation in the home and the office, for transportation, and for filtration awaits the professional audience on an excursion to the home of innovative nonwovens.

At home is the watchword, because Sandler nonwovens for various applications render our home more comfortable. fibercomfort® insulation materials are applied in the roof and in walls, providing for rooms at a pleasant temperature and at the same time helping to conserve energy. In partition walls sound-insulating nonwovens create optimum conversational acoustics. These textile solutions also provide for a quieter everyday worklife in office partitions, additionally functioning as a design feature for individual room design. The product range offers the right acoustic nonwoven for every application: soft and voluminous or self-supporting and compact; with an open-pore surface of especially smoothed; white, black or a marble-like shade in colour—these textiles can be adapted to customer requirements. They can also be finished with print or embossed motifs or laminated with different fabrics. Filter media provide clean air to breathe—for optimum indoor air quality at home as well as in industrial buildings. Sandler's latest development for this application are enAIRsave® pocket filter media. Apart from excellent filtration performance, they put a premium on energy conservation.

On the go, Sandler nonwovens ensure a comfortable drive, particularly on long trips—in the automobile, in bus, train or the working vehicle at the construction site. Efficient acoustical absorbers dampen engine and driving noise, providing for a pleasant noise level. New sawasorb® advanced nonwovens achieve this level of sound insulation at low product thickness. They are therefore ideal for narrow installation spaces and—using fewer raw material—offer a more sustainable product solution. Lightweight sawasorb® premium exterior shadow absorber nonwovens are not only acoustically efficient at low product thickness, they also feature hydro- and oleophobic properties particularly for exterior applications in wheel house liners

or under ride guards. sawaloom® nonwovens for seat upholstery in vehicles provide the cosy-factor. Being air-permeable and moisture resistant, these materials contribute to an optimum micro-climate of the seat. The latest development in this product line features a particularly soft, bulky and foam-like quality. Quilted with leather, this nonwoven produces an especially pronounced 3D-quilt-look.

Sample collections are waiting to be discovered in the Sandler garden, tempting visitors to literally feel the difference. Here, soft and skin-friendly nonwovens for hygiene products and wipes complete the product range.

Come in and let yourself be inspired by the manifold possibilities of utilising Sandler nonwovens for your application.
(Source from: "www.sandler.de")

American Roller launches new release coatings product series

UNION GROVE, Wis. – February 21, 2017 – As the industry founding father of Plasma Coatings Release and Traction industrial coatings, American Roller is pleased to announce the release of the Plasma Coatings PC-43000 Series.

This new coating is designed for stationary and rotating parts, including web process industrial rollers. The coating family features new Low COF formulations, and a Smooth, Easy Clean, surface finish. The series includes four different combinations of surface textures and hardness ranges. This coating offers chemical resistance and long-lasting release and clean ability as compared to Teflon® and previous generations of Plasma products.

This scratch resistant coating eliminates attachment sites for microfibers and other fine particles that can cause build up and enhances corrosion resistance properties.

"There are so many opportunities for industrial coating technology to add value in manufacturing processes," explains John Meggers, product manager. "The performance of PC-43000 exceeded our

Market News

expectations and it is exciting to bring improvements to the industry."
(Source from: "www.textileworld.com")

Madaline – New nonwoven product from Mogul

LÜLEBURGAZ, Turkey – February 16, 2017 – Madaline is a Mogul nonwoven product destined to be a trend setter. Just consider a nonwoven fabric that can be treated like a traditional textile, having similar touch and drape and the capability to be stitched without fraying. In addition to its similarity to woven fabrics, Madaline also possesses superb filtration and barrier properties – like a meltblown with the strength of a spunbond.

Madaline uses state-of-the-art and patented bico technology to extrude unique filament designs and thereafter subjects them to high pressure water jets to simultaneously shear, fibrillate, entangle and consolidate microfilaments into a fabric.

Madaline's microfilaments are up to 100 times thinner than a human hair and are the key to Madaline's unique properties. The fabric's dense structure provides very good barrier and filtration properties and, thanks to its microfilaments, has good moisture management capability. It is absorbent, quick to dry and breathes well. Madaline is washable and has very good and complementary properties of thermal insulation, wind resistance and ultraviolet protection.

Madaline's advanced attributes make it uniquely applicable for use in processes such as finishing, dyeing, printing, cutting and stitching just like traditional textiles. This new fabric provides a very smooth hand, close to traditional textiles, with excellent dyeing and printing capability and is strong and durable and shows no 'Velcro' effect.

Mogul's Madaline technology employs polyester and polyamide to form two different filament shapes; 'Hybrid Mixed Media' or 'Multi-Lobal' which provide:

- Higher tensile and tear strength (create a rip-stop);
- Higher permeability;
- Lower energy costs; and

- No delamination as in multiple beam systems.

Madaline fabrics can be used for a wide range of applications such as;

- Clothing (outdoor performance wear, jeans, sports and leisure wear, uniforms, work-wear);
- Home textiles;
- Industrial use;
- Digital large format printing media for signs, advertising and printed labels;
- Mattress covers (anti allergy and dust mite proof);
- Medical (scrubs apparel, wipes);
- Dry wipes and towels (sports towels, industrial special cleaning cloths);
- Filtration;
- Technical packaging (scratch-free);
- Sun shield (tents, awnings, shelters, vehicle covers) and window blinds;
- Substrate for coating and synthetic leather backing;
- Wall coverings;
- Automotive applications (interior covers); and
- Acoustic insulation for vehicles and buildings

(Source from: "Mogul Nonwovens")

Autefa Solutions to show nonwoven solutions at INDEX 2017

Autefa Solutions, Germany's leading textile machinery company known for the development, engineering, and manufacturing of industrial logistics and automation solutions, is set to present its latest range of nonwoven solutions at INDEX 2017, the world's leading nonwovens exhibition, to be held in Geneva, Switzerland, from April 4 to 7, 2017.

The company is showing the Autefa Solutions V-Jet, a new hydroentanglement system which saves up to 30 per cent of the hydraulic energy required for the Spunlace process. The patented jet-strip design enables a pressure reduction while keeping the product quality constant in comparison to a standard jet-strip. The Spunlace process is optimised with the Square Drum Dryer SQ-V, which has significantly better energy efficiency and drying performance than a common Drum Dryer – at the same footprint.

The Crosslapper Topliner CL 4004 SL is

Market News

characterised by a high infeed speed of up to 130 m/min and a precise weight distribution. These advantages are very important especially for lightweight applications in spunlace lines. The lapping of the web layers is continuously monitored, which minimises rejects and saves material.

There is also a growing interest in high speed through air thermobonding lines for hygiene products such as acquisition and distribution layers (ADL). These materials are used in baby diapers, sanitary napkins and adult incontinence products. The key strengths of the Autefa Solutions belt dryers are uniform airflow and the precisely adjustable temperature distribution, the ability to maintain loft or to create high densities.

For the needle nonwovens process, Autefa Solutions will present the Needle Loom Fehrer Stylus ONE, a machine for all needling applications. StylusONE covers the needs of the market for a reliable and economic machine. With a performance of max 1200 strokes/min the Needle Loom StylusONE distinguishes itself through productivity, guaranteed longevity, and maintenance free gear boxes.

Autefa Solutions delivers turn-key lines as well as individual machines for nonwovens manufacturing. Application fields are the production of artificial leather, filter products as well as paper-machine felts, automotive felts, geotextiles, floor coverings, felts for insulation and nonwovens for the hygiene industry.

The product range includes fibre preparation machines, nonwovens cards, aerodynamic web forming machines (Airlay), crosslappers and needle looms. The product range additionally includes equipment for thermobonding, drying as well as cutting-, winding- and festooning- technology. (GK) (Source from: "www.technicaltextile.net")

Nonwovens leader AVGOL underlines growth plans with multi-million dollar ISRAEL site investment

Avgol, the global leader in the manufacture of nonwoven solutions for hygiene markets, is set to open a new \$60m manufacturing

site in Dimona, Israel, as part of the company's ambition to grow its customer base in Europe, the Middle East, Africa and South America.

The site will run a state-of-the-art Reicofil 4 line with SSMMS and twin calendar configuration, enabling Avgol to offer customers in the region the most advanced innovations in baby diaper products, adult incontinence and feminine hygiene. It will also bring its Israeli business in line with the capabilities of other Avgol sites around the world.

The line is being commissioned in March and is expected to be commercialised by July 2017.

Gilad Frenkel, vice president of sales and marketing at Avgol, said: "Avgol is focused on growing its multinational presence and strengthening its position within the EMEA and LA regions. To do this, we need to have world-class operations that will allow us to deliver the very best new product developments that are demanded by our customers in what is a very diverse market.

"The new line means Avgol will be able to offer a wider choice of materials and solutions that demonstrate our expertise and which respond to changing consumer and brand requirements."

Commenting on the current market situation, Gilad said innovation was being driven by customer 'desires' becoming clear needs and requirements.

He said: "There has been a shift towards innovation that addresses customer preferences in terms of softness, dryness, leak prevention, cost/value and light weight. Striking the balance between softness and weight is a key challenge for manufacturers and consumers place a high premium on comfort. Once they find it, they are very brand loyal and Avgol's cutting-edge soft technologies enable us to deliver high performing, soft-touch products around the world meeting this need."

Market News

Such technologies involve Bi-component, special soft patterns and soft chemistry. Avgol supplies manufacturers and brands in 32 countries from existing production sites in Israel, USA, China and Russia.

The opening of the new Israeli site, located in the Negev desert, forms part of a huge multi-million dollar investment and expansion programme by the company. A second production line was installed at its Russian site last year and a fifth line is currently being commissioned at a site in Mocksville, North Carolina.

(Source from: "www.Avgol.com")

BIT invests in Laroche, TechnoPlants line

Bouckaert Industrial Textiles (BIT), Woonsocket, R.I. – a manufacturer of nonwoven roll goods for thermal and acoustical insulation, specialty filtration, automotive and industrial markets among other end products – has purchased a 3.4-meter-wide air-lay line from France-based Laroche and Italy-based TechnoPlants S.r.l. The \$3 million investment – the largest investment in the company's 28-year history – will produce 8 million to 10 million pounds of material per year and will add 15 new jobs.



BIT a new air-lay line

BIT, a division of the Brickle Group, recently purchased a new air-lay line to enhance its product offering.

The delivery and installation began in January 2017 and the line is expected to be operational some time in April primarily manufacturing nonwovens for thermal and acoustical insulation markets. Additional capacity will be tailored to specialty filtration and conveyor belting products.

"We originally looked into bringing on this

capacity due to our current client's growing business and requests for material we could not supply with our current lines," said Max Brickle, president, BIT. "It was this desire to support our client's needs that really made the decision."

(Source from: "www.textileworld.com")

Hygiene upgrades from Bicma

Bicma Hygiene Technologie GmbH, a privately owned German machine builder, will showcase a number of new developments at INDEXTM I 17, Booth 23 J including:

- Multi-colour inline flexoprinting on topsheet, acquisition layer and other materials
- Ultrathin high-performance technology for cores with high SAP amount
- Baby diaper machines and upgrades in three performance levels for all product concepts: Shaped or rectangular elastic ears, or classical anatomical shape
- Economical machines for business starters as well as sophisticated machines for high production volumes
- Equipment for bladder control pads which are specialized for female or male consumers
- Adult diaper machines and upgrades to run modern product concepts with anatomic add-on ears, or with pre-folded elastic belts
- Smart quick size change solutions, based on specific new technology
- Flexible hybrid machines to combine product families on one machine: Feminine care and bladder control products, adult diapers and briefs, adult diapers and underpads
- Analysis and upgrades of existing machines, to improve efficiency and product design.

Bicma is a leading supplier of high quality machines and upgrades. The portfolio covers equipment to manufacture top quality baby diapers, bladder control products, adult diapers, femcare products, underpads, meat pads, pet pads, nursing pads and similar products.

All features are available either with new Bicma machines, or as upgrades for existing lines of any brand, the company said.

(Source from: "INDEX 17")

Market Trends

First Quality promotes Dri-Fit technology

Dri-Fit technology in fem care and incontinence products helps promote skin health by managing consumers' microclimates

First Quality Consumer Products and its affiliated companies are bringing a new standard of performance to absorbent hygiene products through their ingredient brand, Dri-Fit. Dri-Fit innovations are found within Prevail incontinence, store brand feminine care and incontinence products, and help promote skin health by managing consumers' microclimates – the small layer of air between skin and whatever consumers are wearing. With an innovative blend of natural and synthetic fibers, Dri-Fit provides features that reduce pressure, moisture and temperature to ultimately help keep skin more dry, comfortable and healthy.

As a leading manufacturer and supplier of store brand feminine care and incontinence products, First Quality has focused on driving growing enthusiasm for store brand products by developing the Dri-Fit innovation, which drives break-through innovation not just for store brands, but the broader category. In fact, according to a report by Mintel, 97% of shoppers age 18-36 say they're likely to buy a store brand, and 42% agree store brand products are more innovative than name brand ones.

"While millennials are leading the demand for store brand products, we've also seen a growing interest across older demographics and want to help consumers of all generations feel more natural when experiencing periods or incontinence," says First Quality. "As an industry leader in the manufacturing and supply of store brand feminine care and incontinence products, we want products featuring the Dri-Fit logo to be known as innovative, accessible, and affordable options for consumers."

To further educate consumers about Dri-Fit innovation, First Quality announced recently the launch of its first ever national campaign for Dri-Fit, highlighting that the Dri-Fit technology found within Prevail and store brand feminine care and incontinence products helps consumers "Feel More Natural." The brand's new website provides

insight into the science behind Dri-Fit innovations, featuring a detailed illustration and instructional video of Dri-Fit innovations, as well as statistics related to Dri-Fit performance. The campaign aims to educate consumers about the unique blend of natural and synthetic fibers found within products with the Dri-Fit logo and help increase knowledge related to managing consumers' microclimate.

Dri-Fit innovations help promote skin health and reduce skin discomfort through a combination of cotton-enhanced fibers, delivering five times drier protective underwear products and locking in 20% more wetness in bladder control pad products. Incontinence and feminine care products incorporating this technology are made with a unique blend of cotton and synthetic fibers to hold moisture in while making sure consumers still feel dry. With a strong, absorbent core that can absorb thirty times its weight in both sanitary and incontinence pads, as well as protective underwear, Dri-Fit products work to prevent leakage and help maintain skin health through dryness.

Feminine care and incontinence products incorporating the Dri-Fit system span protective underwear, bladder control pads/liners, ultrathin maxi pads, thick maxi pads, and panty-liners, and can be found at all major food, drug, mass, dollar, e-commerce and club chains. Consumers can look for the Dri-Fit logo to easily differentiate which products contain this technology.

(Source from: "www.nonwovens-industry.com")

Indian diaper market expecting growth

Unicharm's Mamy Poko diapers surpass Kimberly-Clark's Huggies brand in the country

According to a new report from Bonafide Research "India Diaper Market Outlook, 2022," the diaper market in India is growing with more than 20% CAGR from the last seven years. The healthy growth rate is driven by factors such as millions of babies born per year, higher disposable incomes and the increased hygiene awareness of Indian mothers.

While India has a vast population of around

Market Trends

1.2 billion, uptake of disposable diapers is still low compared with other developed markets. However, manufacturers believe that India could grow to become an even larger market than China in coming years. This potential growth has led major players to invest heavily on product innovation and development to get an upper hand over their competitors. The major brands have been using television based advertising to their full advantage and have raised the awareness of diapers in the country.

The Indian diaper market has long been characterized by large fluctuations in the market share within short periods. Previously, the main players in the industry were Procter & Gamble's Pampers brand and Kimberly-Clark's Huggies brand. However, Unicharm's Mamy Poko Pants, one of the latest entrants into the market, has gradually developed into a major player now, according to the report. The company has already overtaken Kimberly-Clark.

Unicharm India, a wholly-owned subsidiary of Unicharm Corporation, has two diaper brands in its Indian portfolio, MamyPoko for baby diapers and Lifree for adult diapers. Unicharm has seen strong growth in India since 2009, when it entered the disposable baby diaper market on a full-scale basis. In fiscal 2013 and 2014, the company's sales growth accelerated to almost 100% and 80% respectively year on year, supported by efforts to promote economy pants-type disposable diapers. Unicharm India is further targeting growth in India by extending their sales areas to secure new users and by promoting their pant type disposable baby diapers, a category where the brand already has a strong position. The company's second factory located in Southern India started operations in 2016. The new factory is a part of wider efforts to strengthen their local manufacturing framework and give them the capability to serve all areas of India.

(Source from: "www.nonwovens-industry.com")

mBRACE™ softening additives offer comfy options to nonwovens producers

MANCHESTER, UK – MARCH 16, 2017 – Americhem Europe Ltd., a global provider of colour and additive solutions for synthetic fibres, will feature a full range of its mBrace™ softening additives at the Index 17 global nonwovens exhibition being held 4–7 April

at the Palexpo SA in Geneva, Switzerland. These products offer a span of use rates, processing options and degrees of softness for nonwoven products throughout the world.

"Our product offerings in the mBrace line can be divided into two groups," said Dhru Mantheni, nonwovens development specialist for Americhem. "The first group allows you to achieve softness levels by reducing the coefficient of friction (slip) while the other developmental group imparts a cottony textile feel. At higher use levels, the first group of mBrace products can also carry additional functionality, such as antistatic and hydrophilic. We have developed products which are thermally stable and allow the user to deliver a soft touch without impacting other material properties."

The mBrace line has evolved since its introduction in 2013. Nonwovens producers have long sought added softness for their materials, particularly in applications that will have human skin contact. mBrace was Americhem's answer to this demand and the current range of options has emerged to suit the many different end uses in the market today.

"Our original mBrace offering allows you to alter the level of softness by the amount of the additive used," Mantheni continued. "For the best softness properties, we recommend a use rate of one to three percent. When used at four to five percent, the manufacturer can impart antistatic properties, as well as hydrophilicity, in addition to a soft feel."

The second group of mBrace products are based on a widely accepted industry technology. Concentration level of the thermally stable additive within the masterbatch as well as target use rate can be customized to fit a customer's specific requirements. This added flexibility helps to ensure optimum softness is achieved while eliminating any impact to processing conditions.

"Since mBrace is now a family of products, the portfolio offers increased flexibility to tailor the additive product to meet our customers' needs," stated Robert Baldy, market manager for Americhem, nonwovens. "If the customer values certain properties over

Market Trends

others or even if they are trying to achieve multiple functionalities with one masterbatch, Americhem's innovative solutions can provide them with exactly what they need."

The mBrace brand continues to grow to meet customer needs. Americhem is currently developing an mBrace product that offers a cottony haptic. All mBrace products offered in Europe are REACH compliant and can be provided in a variety of packaging options.

(Source from: "www.textileworld.com")

USTER® fiber cleaning systems prevent contamination in hygiene and cosmetic nonwoven applications

USTER, Switzerland – March 7, 2017 – Yarn spinners already understand the importance of preventing contamination in their products. A total of 3,500 worldwide installations of Jossi fiber cleaning systems – now produced by USTER – is proof of that. The USTER® JOSSI VISION SHIELD solutions are highly effective at removing even the smallest contaminants, including polypropylene. For nonwovens producers, however, the risk of contamination is possibly even greater: in medical and hygiene applications, for example, quality standards are super-critical and zero contamination is essential.

Contaminated yarn is one of the spinner's biggest headaches, potentially leading to customer claims and rejects when synthetic particles such as polypropylene (PP) remain undetected in cotton until the fabric reaches the dyehouse. Today, the range of Uster Jossi systems is proven to deal with this problem with unbeatable effectiveness, detecting and removing foreign matter from cotton at the spinning preparation stage.

Uster Technologies acquired Jossi AG in 2013 and now applies the Uster Jossi Vision Shield 2 and Uster Jossi Vision Shield T systems, using multiple detection principles to eject all polypropylene particles, however minute. The finest white PP contamination is reliably and efficiently detected with the Uster Jossi MAGIC EYE in combination with the Uster Jossi Vision Shield. Practically all types of foreign matter, including polypropylene and polyethylene, are eliminated by Uster Jossi Magic Eye, with a minimum of waste.

Special challenges for nonwovens producers

Compared to yarn spinning, nonwovens products and processes bring some special challenges and even more demanding requirements. Imagine, for example, a scratchy remnant of polypropylene in a make-up removal pad or any kind of contamination in hospital products such as absorbent cotton, alcohol swabs, or nonwoven gauze. Such problems would be totally unacceptable. Not surprisingly, markets for medical and hygiene products in the USA, Europe and Asia are extremely quality-oriented.

With developments in man-made fibers, there was a trend about 25 years ago for nonwovens applications to switch from pure cotton to synthetics. Initially, consumers preferred the dry and light texture of synthetic fibers. In the last decade, however, many applications are seeing a return to pure cotton as the favored option, particularly where allergenic issues such as skin reddening and irritation are possible.

Manufacturers of nonwovens for these demanding end-uses now require an efficient contamination control system, guaranteeing a zero-tolerance standard – for defects bigger than 1 mm – in their products. In nonwovens, fiber cleaning is the only way to control contamination – unlike in spinning where yarn clearing can make a final check at the winding stage. Product quality in nonwovens therefore depends absolutely on the efficiency of the fiber cleaning system, which makes investment in the Uster Jossi Vision Shield system a logical step.

Nonwovens: Big in Japan

Most of the machinery for nonwovens hygiene products is made by Japanese companies and Japan itself plays a leading role in manufacturing goods for medical and cosmetic applications, as well as food packaging materials. "Japan is growing as a market for Uster fiber cleaning systems, thanks to these nonwovens applications," says Oswald Baldischwieler, Product Manager Fiber Cleaning within Uster Technologies. "The combination of Uster Jossi Vision Shield and Uster Jossi Magic Eye supports the manufacturers to control contamination continuously at a high level."

Market Trends

USTER at Index

The importance of the nonwovens sector for Uster Jossi systems is demonstrated by the company's presence at the forthcoming INDEX 2017 event in Geneva the largest global meeting point for the nonwovens market. Uster believes that its technology which is already well known and appreciated in cotton spinning will attract wider interest at the exhibition from manufacturers of bleached cotton and other quality-critical nonwovens products. "With Uster Jossi Vision Shield and Uster Jossi Magic Eye, the whole production is checked, for every category of contaminants including synthetics," says Baldischwieler. "Nothing can escape the detection power of these systems."

(Source from: "Uster Technologies Ltd.")

BASF presents new aqueous acrylic binder for nonwovens in construction and abrasive applications

New Acronal® 2434 binder for nonwovens with high thermo-dimensional stability requirements

With Acronal 2434, BASF presents a new aqueous acrylic binder for nonwovens meeting high thermo-dimensional stability requirements. The binder is particularly suitable for nonwovens that are used for construction and abrasive applications. The innovative binder complements the comprehensive BASF product portfolio of dispersions and resins, which is going to be presented at booth 2427 at the Index fair in Geneva on April 4 to 7, 2017.

Dimensionally stable nonwovens

With Acronal 2434, BASF offers a self-cross-linking acrylic dispersion that lends nonwovens that are exposed to thermal strain high levels of mechanical stability. The binder is particularly suitable for nonwovens made of synthetic fibers such as polyester. The newly developed product is compatible with other cross-linking systems such as melamine and urea resins. In addition, it can easily be applied with regular foulard systems.

"Acronal 2434 is another high-performance binder that we offer to our customers in the nonwovens industry," says Jürgen Pfister, Vice President Dispersions for Adhesives & Fiber Bonding Europe. "Primarily when it comes to nonwovens that are exposed

to high levels of thermal and mechanical strain, our novel acrylic dispersion delivers outstanding effects. With this innovative and sustainable binder, we have found a solution that is targeted towards the needs of our customers. This way, we can help our customers to be successful."

(Source from: "www.basf.com")

Clariant introduces Mevopur® for medical applications

Switzerland-based Clariant and its Masterbatches business have introduced a range of Mevopur® color and functional additives specifically for use in high-performance, spunbond fibers used in medical applications including gowns, masks, medical filtration products and wound care dressings, among other applications.

Clariant reports the Mevopur masterbatches and compounds come with regulatory documentation showing the biological evaluation of its raw materials to USP chapters (Class VI) and ISO10993 requirements to support their use in medical applications. The masterbatches are available in seven colors – yellow, orange, red, violet, dark blue, mid green and green.

"Our product line continues to expand and evolve, now meeting customer demand for change-controlled raw material ingredients that comply with stringent medical requirements, and helping manufacturers find new alternatives for creating more colorful, comfortable, and functional medical and hygienic products," said Francis Baud, global fiber marketing head for the Clariant Masterbatches business unit.

(Source from: "www.textileworld.com")

Trevira at Index 2017: New developments in fibres for the nonwovens industry

BOBINGEN, Germany – March 24, 2017 – Polyester fibre specialist Trevira GmbH from Bobingen is presenting in Geneva its comprehensive programme of products for the wide range of technologies and applications in the non-wovens sector. Besides new products and customized fresh developments, the focus is on further developing and optimising existing fibre types servicing this important segment.

Market Trends

A new offering in biopolymer fibres (Ingeo™) is a siliconized PLA hollow fibre for use in fillings. In response to customer demand in terms of product functions and material properties, the comprehensive product range for airlaid applications is being continuously enhanced. This also applies to special fibres for the carding sector and shortcut types for the paper industry; where the focus is on improving dispersion.

With regard to the increased need for fibres with additional functionalities and to the use of fresh combinations of raw materials, capacities in bico-fibres are being expanded. For both the polyester and the PLA programme, Trevira has also developed modified fibres for the hygiene sector (e.g. for wet wipes), where these stand out due to their particularly soft handle.

Emphasis is also being placed on finishes for fibres that must meet food industry standards, likewise on antimony-free polyester fibres, the aim here being to enhance product safety.

At Index 2017 Trevira will again participate in a joint presentation with sister companies from the Indorama Ventures parent group, a repeat of the procedure followed at the last event in 2014 and at IDEA in Boston in 2016. At Techtextil in Frankfurt in May this year Trevira can also be found on the Indorama Ventures group stand.
(Source from: "Trevira GmbH")

Ahlstrom reaches Multi-Year agreement in coffee pod market

Will supply PLA-based pod material to Club Coffee

Ahlstrom has signed a multi-year agreement for the supply of its fully compostable infusion material for single-serve coffee pods. The contract is a major breakthrough for Ahlstrom in the fast-growing North American market for single-serve coffee solutions.

Under the multiyear contract, Ahlstrom will supply its biodegradable polylactic acid-based (PLA) product made from corn starch to Club Coffee, a Canadian roaster and packaged coffee products company. The biopolymer is combined with other natural fibers to obtain

the pressure resistance properties necessary for a good quality and filtering abilities needed to block residues from passing through. Club Coffee uses the material in its award-winning PurPod100 solution.

"We are very proud to partner with Club Coffee, a company known for quality and innovation in the industry," says Omar Hoek, executive vice president at Ahlstrom's Specialties business area. "This achievement has taken a lot of effort and dedication from our team and is a perfect example of how we are executing our strategic roadmap by seeking growth via new platforms with innovative products."

Club Coffee's PurPod100 solution recently won the "Innovation in Bioplastics Award" by the Plastics Industry Trade Association in the U.S. The product offers consumers a single-serve coffee solution that fully breaks down in typical municipal and industrial composting facilities in as little as five weeks. In the U.S., single-serve retail coffee sales grew by 319% between 2011 and 2015, reaching about \$4.6 billion in revenue in 2015.

Ahlstrom produces PLA-based materials, which can be also used in tea bags and other food packaging solutions, at its plant in Chirnside, U.K.

(Source from: "www.nonwovens-industry.com")

Advanced roller technologies

Martin Automatic Inc will demonstrate its advanced Airnertia and MDC roller technologies. Offering the lowest roller inertia and essentially friction-free rotation, these technologies are among the solutions Martin Automatic offers for non-stop roll change and transport of web materials.

Martin Automatic Inc continues to experience strong equipment sale, nonwovens converters and material manufacturers, including unwind, using a variety of splicing methods for web speeds to 915 m/min. Martin systems can be integrated into new lines and retrofitted to existing processes for greater speed, tension control and productivity.

Stop by the company's stand to see how Martin Automatic's unwind rewinds, web

Market Trends

transport and tension control products can help increase production and profitability.
(Source from: "INDEX 17")

3M to discuss sustainable operations

3M will present its range of products and services. The company specializes in providing fastening systems to the global personal Hygiene market, with its solutions delivering comfort, reliability, security and discretion to babies, seniors and women who rely on absorbent products.

Its portfolio of hook, loop, elastic films and tape products are designed to meet a wide range of closure design needs across baby, adult and feminine care segments. The company will look to present this diverse range of solutions in Geneva.

According to the company, it values sustainability highly in its operations. As the world's population grows, particularly in emerging economies, challenges such as energy availability and security, raw material scarcity, education and human health and safety must be addressed.

The company suggests that its progress in sustainability thus far, as well as its future aims, will help tackle "barriers to improving every life" including: raw materials, water, energy and climate, health and safety, and education and development.
(Source from: "INDEX 17")

Next-generation packaging equipment

Focke & Co, a leading manufacturer of packaging machines worldwide, will present its latest machinery at INDEX™ 17. The 'New gen' series of stacking and bagging equipment stands for high-speed and the latest technologies on small footprint.

Reduced to the maximum and developed with a special focus on TCO aspects, the machine design offers various packaging solutions for feminine care products. It also offers the latest control systems, utmost efficiency, and a modular design that supports easy operations and maintenance of the equipment. It can also achieve a speed of up to 125 bpm per single bagger, and can produce folded and

unfolded feminine hygiene products. Other options include: Various layout options with one or more baggers and/or cartoner available; turning modules (cross/in line) for individual pack configurations; an external automatic bag magazine; a reject station for quality control; a manual loading module for the feeding of additional products; camera-based sealing quality check; and special noise reduction to under 80 db (A). Headquartered in Germany, Focke & Co operates sales and service branches on all continents. Since its foundation in 1955, the family-owned enterprise has delivered more than 18,000 machines to more than 70 countries.

Focke Packaging Solutions GmbH is the second largest company within the Focke group and is responsible for the division General Packaging for the complete range of purchasing, sales, engineering, project management, assembly and service. The machines are designed for 24-hour/seven-day operations with high reliability and durability realized through first-class components and strict quality management.
(Source from: "INDEX 17")

New composite technology from Tatham

Tatham is a leading supplier of complete nonwoven production lines for a wide range of applications. It will present its new technology to manufacture composite products from carbon fibres glass and thermoplastics at INDEX™17.

The specialist processing technology enables staple carbon fibre and reclaims carbon fibre to be converted into nonwoven mats. Fibre orientation can be changed to suit the product properties (isotropic, cross-laid and parallel-laid).

Innovative needlepunch systems complete with batch winding/slitting art also available.

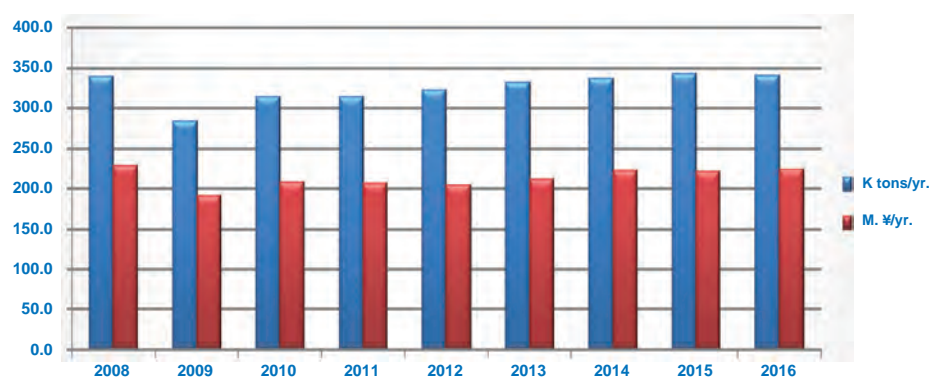
Tatham's range of machinery includes fibre opening and blending, carding and crosslapping, and needlepunching. It also offers all ancillary equipment for winding, slitting, perforation, web cleaning, weight control devices, and drive and control systems.
(Source from: "INDEX 17")

2016 Japan nonwovens production

Japan nonwovens production (2008~2016)

Source: METI

	2008	2009	2010	2011	2012	2013	2014	2015	2016
K tons	338.4	283.4	313.4	313.0	320.9	331.5	336.3	342.0	339.6
Bil. JPY	228.8	191.0	206.9	205.7	203.5	210.2	221.3	220.6	223.5
JPY/Kg	676.0	674.0	660.2	657.2	634.2	634.1	658.0	645.0	658.1



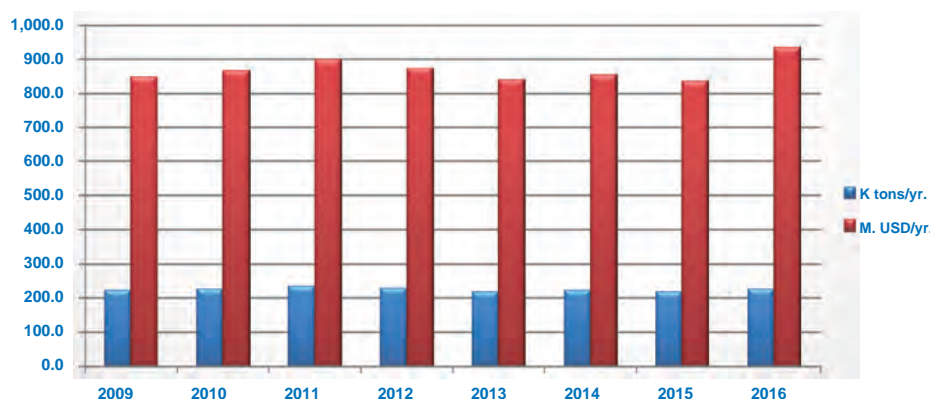
[Ref.]: Nonwovens production in foreign countries by Japanese companies (capitalization ratio: 49% or more)
 2012: 165.1 K tonnes, 62.3 B yen, 2013: 196.3 K tonnes, 84.1 B yen
 2014: 227.5 K tonnes, 103.2 B yen, 2015: 259.0 K tonnes, 120.1 B yen

Source: ANNA

2016 Korea nonwovens production

Korea nonwovens production (2009~2016)

	2009	2010	2011	2012	2013	2014	2015	2016
K tons	220.2	224.9	233.2	226.2	217.1	221.3	216.2	225.5
Mil. USD	847.0	865.0	897.8	872.0	837.1	853.1	833.2	932.3
USD/kg	3.85	3.85	3.85	3.85	3.86	3.85	3.85	4.13



Up-graded Nano Fiber Tec. & It's new applications

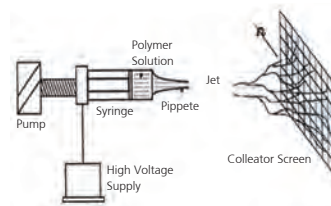
James Kim

What is the "Electro-Spinning"?

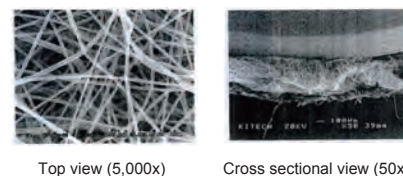
Definition: Process that produces a highly impermeable, non-woven fabric of submicron fibers by pushing a millimeter diameter liquid jet through a nozzle with an electric field after making a polymer solution (fibrillation of polymer)

- Ex) Electro Melt spinning & blown: 0.001~0.00001mm
- Dry spinning Fiber: 0.5~1.0mm

Simple drawing of E/S Summary of electrospinning schematic



Electro-static polymer solution SEM Photos of nanofiber web



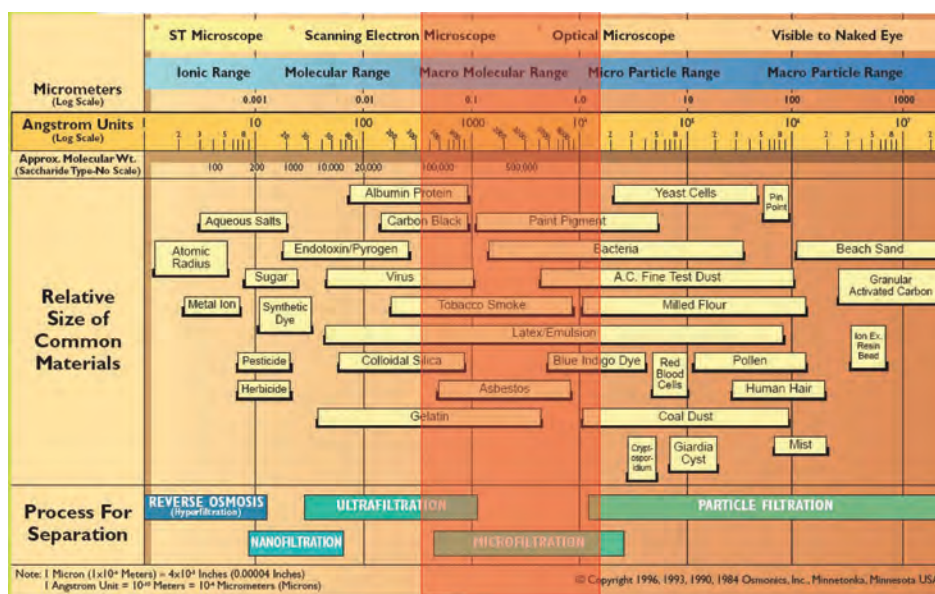
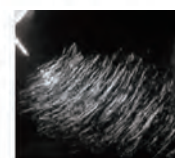
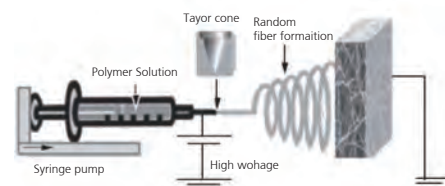
Top view (5,000x)

Cross sectional view (50x)

Origin of Electro-Spinning Tech

Start: Formhals, A., US Patent, 1,975,504 (at 1934)

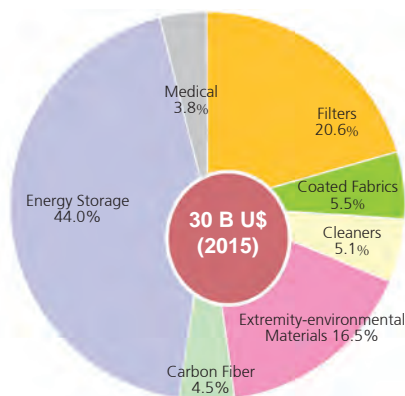
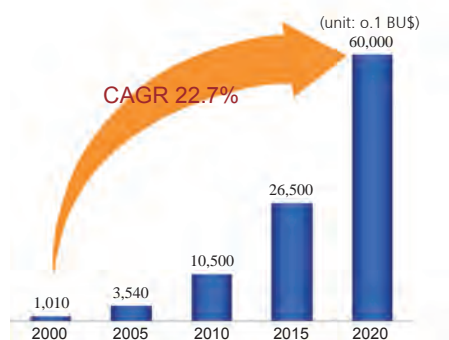
Low T-put: 0.01g/min-hole



Market prospect of Nano Industry

- Possible to expand to the wide application beyond previous materials.
- Growth rate 10% since 2009, Market scale will be 30 billion by 2020 year..
- Main market will be energy storage and filter materials.

Prospect of world-wide nano Fiber-market



Available polymers in Electro-Spinning & its solvent

- PAN (Poly acrylonitrile) ; DMF – (Hydrophobic)
- Cellulose; NMMO: Normal Methyl Morpholine N-Oxide)-Applied for Tire code
- Polyimide; PHENOL(Heat resistant)
- Polyamides & Poly aramide : SULFURIC ACID(Heat-resistant)
- Poly aniline: SULFURIC ACID(Conductive)
- PU (Polyurethane): DMF(Elastics and

Technology News

Adhesive)

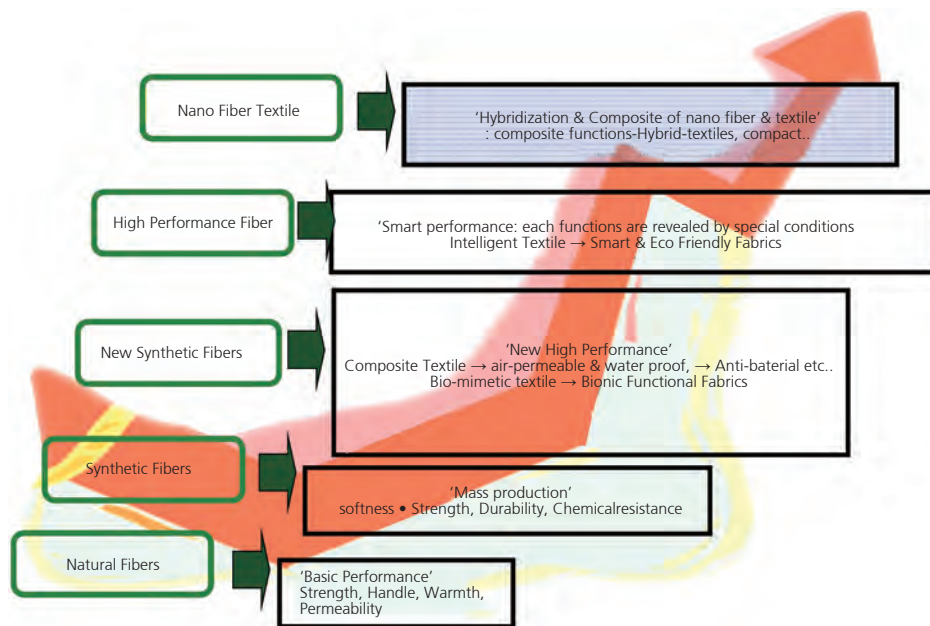
- PVA (Poly vinyl alcohol): WATER solubility
- PVC, PVDF: DMF(Frame retardance & Hydrophobics)
- The others: Natural polymer, Polypeptides(Protein), Collagen

Details of polymer and it's solvent

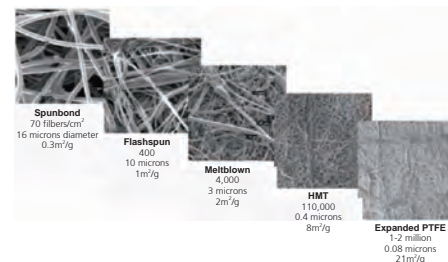
Polymer	Solvents
Polyimides	Phenol
Polyamic acid	m-cresol
Polyetherimide	Methylene chloride
Nylon 6 & Nylon 66	Formic Acid
Polyaramid	Sulfuric acid
Poly-benzyl-glutamate	Dimethylformamide
Poly(p-phenylene terephthalamide)	Sulfuric acid
Polybenzimidazole	Dimethylacetamide
Utem 1000 (Polyether imide)	Chloroform
Nylon 6-co-Polyimide	Formic acid
Polyacrylonitrile(PAN)	Dimethylformamide
PET	Trifluoroacetic acid/dimethylchloride
Polypropylene	Melt in vacuum
PVC	THF/DMF
PVA	Water
Polystyrene	Toluene/DMF
Polycarbonate	Methylene Chloride

Possibility: CNT with other polymer
Graphene with other polymer

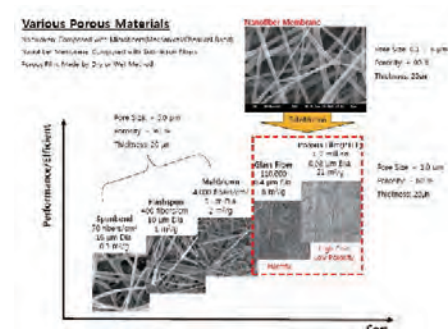
Future trend of textile – fabrics



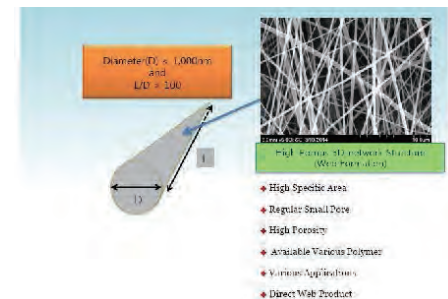
Trend of Nano and Micro fiber



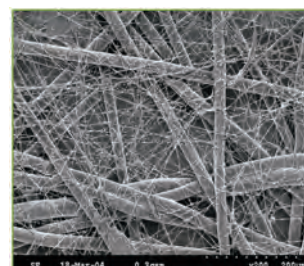
Position of Nano fiber membrane



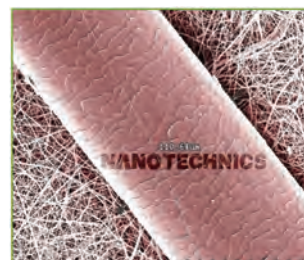
Features of Nano fiber



Size of Nano fibers



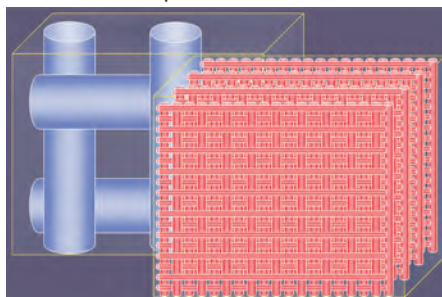
Nano fiber with P.E.T 2d Spun-bond



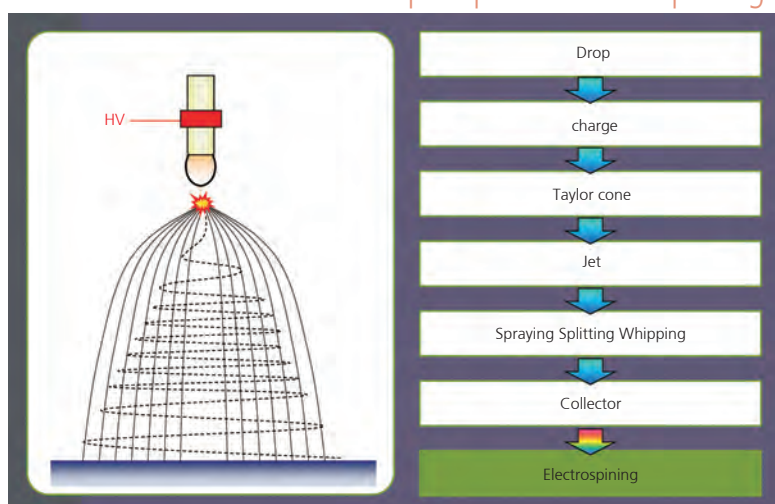
Nano-fiber with Hair

Technology News

Surface area & pore size of Nano-fibers

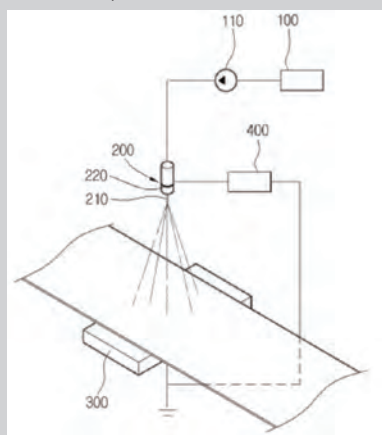


Basic principle of electro - Spinning

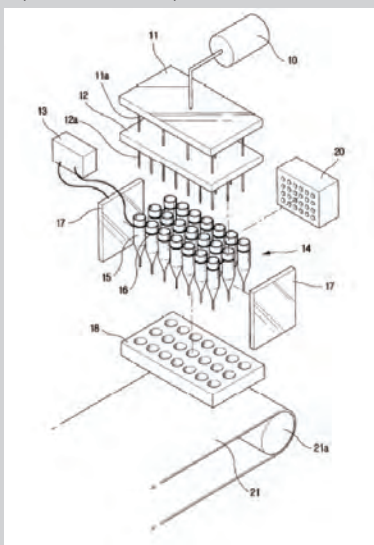


Methods (patents) of Electro-Spinnings

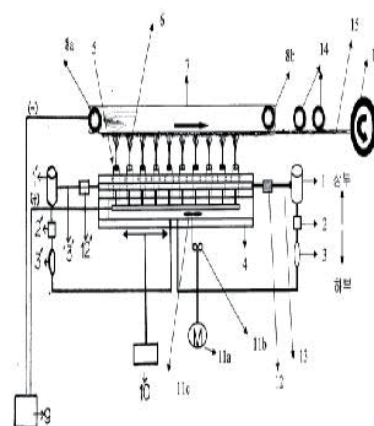
Classical E-spin



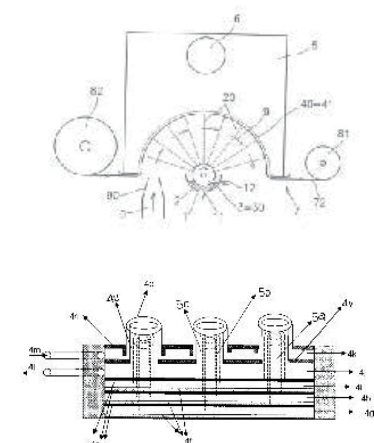
Multiple Classical E-spin(over 80%)



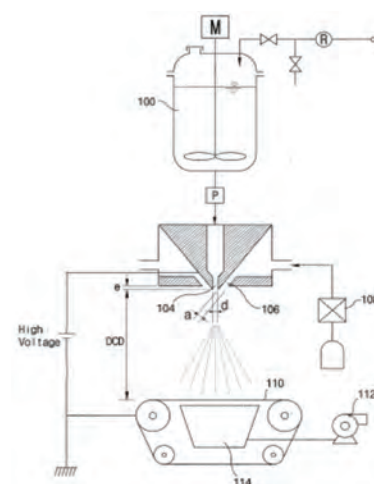
Upward type Classical E-spin



Rolling type Classical E-spin

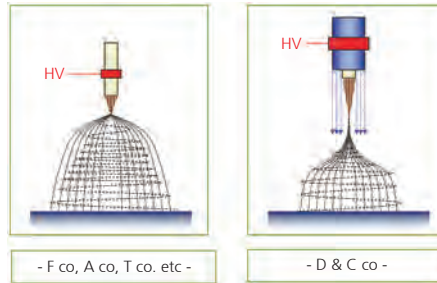


Modified Electro-blown spinning (E co.- D co.-C co.)

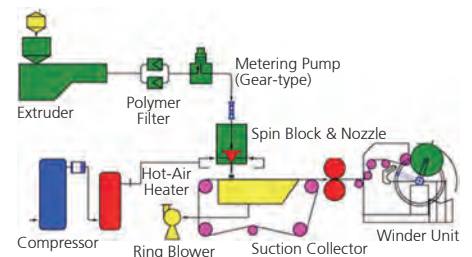


Technology News

Electro-Spinning Vs. Electro-Blown Spinning



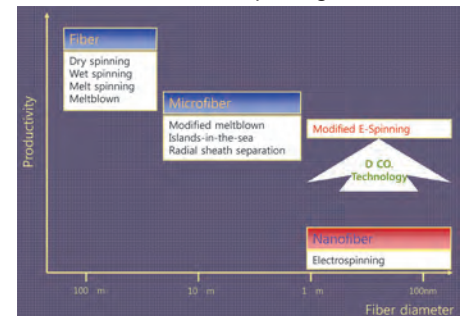
E Spinning with Melt Blown Tech (Hybrid Tech)- Process



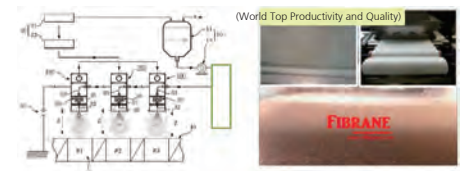
Current Problems of E/S Technology

- Big nano-size's deviations of M/D & C/D
- Impossible to be guaranteed
- Air/Liquid Filters, Sports Wear, Bio-medical, Battery Separator, etc.
- Productivity**
 - Restricted in Mass Production Productivity
 - High Maintenance Cost & expensive fixed cost.
- Quality**
 - Unstable Process Control and not uniform Fiber Diameter (~ 1μm)
 - Limited at Various Polymers Applications

Features of E / Blown Spinning



Re-modified Tech of AES Technology (Aerodynamic E / S)



- 1) Patented Specially Designed Spin Beam
- 2) High Efficiency Electric Discharge Configuration
- 3) Precision Aerodynamic Flow Control – Laminar Flow
- 4) Post Spinning Carrier Recovery System
- 5) Post Spinning High Speed Web Handling System

Use of Melt-Blown technology for making Nano fibers

Principle

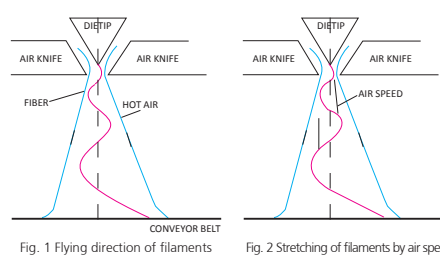


Fig. 1 Flying direction of filaments

Fig. 2 Stretching of filaments by air speed

Melt - blown system



Distinctiveness of AES Tech Technology

- World-wide Patent Coverage
- Various Applications: Air/Liquid Filters, Sports Wear, Bio-medical, Battery Separator, etc.
- Productivity**
 - Unprecedented Mass Production Productivity - Demonstrated
 - 500~1,000% Increase vs. Competitive Technologies
 - Low Maintenance Cost
- Quality**
 - Process Control and Uniform Fiber Diameter (~ 1μm)

Technology News

- Up to 90% Porosity, High Surface Area(5~500 m²/g)
- Various Polymers Applicable

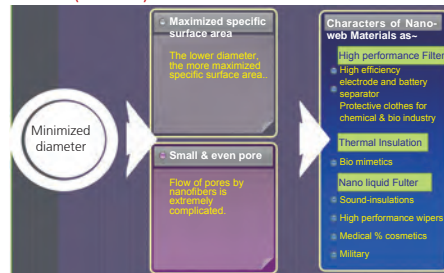
- <http://www.elmarco.com>

• The others

- Donaldson co.

- H & V co. Etc...

Functions & applications of Nano-web (sheet)



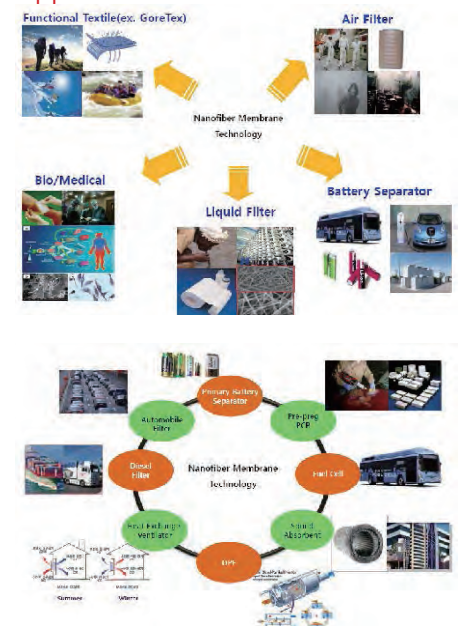
Nano web for filters

- HEPA Filter
- Vacuum cleaner (HEPA grade)
- Engine-Intake Air Filter & Fuel filter
- Filter for Heat-transfer (exchanger)
- Liquid Filter
- Filter Bag for dustcollector (hot gas)
- Gas turbine filters
- battery separator.
- Cabin filters for auto.
- The others etc...

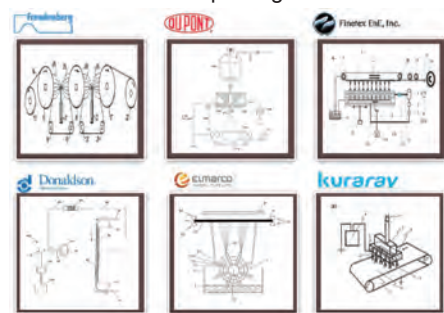
Various applications



Applications



Patents of Electro-Spinning



Worldwide status of Nano-Fiber Tech

- FT ENE Co.ltd
 - success on commercial production in 2005(P.U lining)
- Woo-Ri MNS
- Toptech.
- Amo Greentech.
- Dong-Wha Vitex
- Dong Wha Vitex – Fibrane
 - Success on electro-AES blown spinning in 2012
 - Mass-production with the biggest capacity
 - Transfer tec. & patent.
- Elmarco ltd.
 - Supply facilities(up to 1.6m)
 - Nano-spider technology.

Nano web development: Essential parameters & problems in process control

Article	Parameter & Problems!
Material	<ul style="list-style-type: none"> • Select the proper polymer • Viscosity • Conductivity • Surface tension
Process	<ul style="list-style-type: none"> • Hydrostatic pressure • Electric potential (Voltage) • How to recover expensive solvent • Maximize the productivity
The others	<ul style="list-style-type: none"> • Solution temp • Humidity • Airflow & Velocity • How to minimize of deflection • How to make process-cost down

Technology News

Nano fabrics: Commercialized status

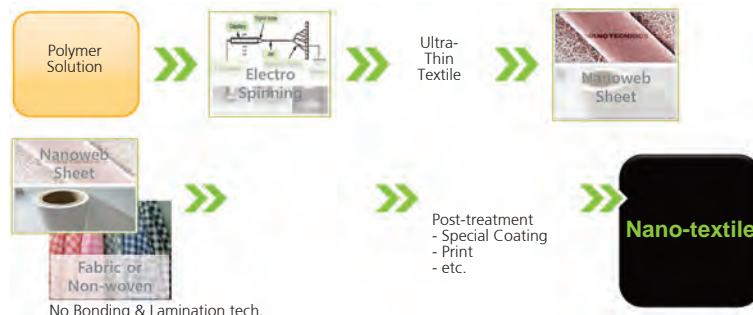
Company	Brand name	Application	Remarks
F Co. (Germany)	V.	Medium filter, Cabin filter	Electro spinning Polycarbonate (1000~2000nm) since 1970.
D co (USA)	Ultra-web	Medium filter, Liquid filter	Nylon, since 1970.
H co (England)	Nanos	HEPA filter, Liquid filter	PP, Technology from Nanofiber Tec., Inc (2000)
Korea		High-performance textile, Filters, Energy storage. Waterproof for membrane of Mobile Vent, Medical etc	PVDF, Nylon 66, PVA, PAN, etc. The highest technics & biggest capacity in the world.

Capacity comparison of each Nano-Process

Articles	AES system	D Co.	F Co.	M co.
Productivity	200Kg/day at a line (nylon)	5.0~7.0Kg/day at a line (pilot production scale) (nylon)	8.0Kg/day at 1 lines (p.u)	10~12.0Kg/day at 1 line (p.u)
No. of holes/line	400~600	-	9720	10,000
g/day/hole	1300	0.5	0.8	1.0
Application	Air/Liquid filter, Battery separator etc..	Air filter	Filter, Apparel	Mask filter energy storage, Apparel
Remarks.	<ul style="list-style-type: none"> re-modified AES blown spin system mass production system 	<ul style="list-style-type: none"> classical E-spin Low-productivity 	<ul style="list-style-type: none"> classical E-spin No. of nozzles is maximized to overcome The low-productivity 	<ul style="list-style-type: none"> classical-E-spin Filters & separators.

Current R&D about Nano textile

Direct A-E/Spinning of the Nano-web on Ultra thin Fabrics



Conclusion

1. To be smallest is more beautiful.
2. To be tiny is Stronger.
3. To be light is fun.

4. little distinction(Inframince) makes big change.

(Source from: "ANFA conference paper, this article extract")

(<<< continue 8)

last 2 lines are scheduled for shipment in the first half of 2017.

Huafon Microfiber Co. Ltd was established in 2002 and is now one of the biggest producers for artificial leather made from sea-island fiber worldwide. The main applications of these high quality artificial leathers are for shoe, automotive, glove, bag, sofa etc.

needling line to Huafon in Jinshan, China, in 2003 and up to 2016 Huafon ordered a total of 19 needling lines.



DiloGroup's needling lines
(Source from: "www.dilo.de")

DiloGroup supplied the first complete

Technical Trends

Thailand looks to the future

One of Southeast Asia's greatest success stories says it's not done advancing

In the past 10 years, Thailand has emerged as country ripe with nonwovens investments, led mainly by Japanese manufacturers looking for a more affordable offshore production site to serve growing markets in Southeast Asia and China. While these investments may have initially looked at growth in China, the markets of Southeast Asia soon proved to be just as important.

In its own right, Thailand, Southeast Asia's second largest economy and second largest surplus exporter, has evolved in recent decades from a country dominated by agriculture and fishing into a Middle Income economy with growing industries like electronics, automotives and nonwovens. And, if the country's economic leaders have their way, this evolution will continue until Thailand emerges as a high income state, self sufficient and sustainable in a number of technology ripe industries.

Enter Nonwovens

In the late 2000s and early 2010s, a number of Japanese companies looked to Thailand to establish offshore operations that would give them access to a lower wage base as well as new markets throughout Asia. Asahi Kasei established its Thai operation in 2012 with a 20,000-ton spunmelt line, doubled this output in 2015 and announced a third line, bringing the company's capacity in the country to 60,000 tons, in 2016. The company's Eltas spunbond is used in a wide variety of applications including disposable diapers and other hygienic products, automotives and other industrial applications and general consumer products.

Executives report that since entering Thailand, not only has the company's Asian business grown, it has also become more sophisticated due to demands for higher product performance and quality, even as price competition intensifies.

Meanwhile, Mitsui Chemicals operates a two-line site in Thailand capable of making 30,000 tons of spunmelt nonwovens as well as breathable films at the site. Nonwovens investment is probably not likely in the near

term as Mitsui focuses on Japan's expansion.

Other nonwovens producers in the country include JNC Corporation, which makes air through bonded nonwovens in Rayong for hygiene applications; CNC International, a locally owned manufacturer capable of making about 40,000 tons of spunmelt nonwovens per year, and Tapyrus, a Japanese meltblown manufacturer that established a Thai operation in 2012.

Time is Right for Thailand

The second largest economy in Southeast Asia (second only to Indonesia), Thailand enjoys a very low unemployment rate and a rising per capita income, which is currently just under \$6000. These figures are particularly impressive when you consider that Thailand, which was once known as Siam, only became an industrialized country and major exporter in the 1990s.

The advancements led the World Bank to describe Thailand as one of the world's great success stories, as it became an upper middle income economy in 2011. "Over the last four decades, Thailand has made remarkable progress in social and economic development, moving from a low-income country to an upper-income country in less than a generation," according to the World Bank.

Also, Thailand's sustained strong growth and impressive poverty reduction, particularly in the 1980s, contributed to its success, but this growth has more recently slowed to 3.5%.

According to figures provided by the World Bank, Thailand's economy grew at an average annual rate of 7.5% in the boom years of 1986 to 1996 and 5% following the Asian crisis during 1999-2005, creating millions of jobs that helped pull millions of people out of poverty. Gains along multiple dimensions of welfare have been impressive: more children are now getting more years of education, and virtually everyone is now covered by health insurance while other forms of social security have expanded.

The percentage of Thai people living in

Technical Trends

poverty has declined substantially over the last 30 years from 67% in 1986 to 11% in 2014 during periods of high growth and rising agricultural prices. However, poverty and inequality continue to pose significant challenges, with vulnerabilities as a result of faltering economic growth, falling agricultural prices and ongoing droughts. Poverty in Thailand is primarily a rural phenomenon. As of 2013, over 80% of the country's 7.3 million poor lived in rural areas. Moreover, 6.7 million were living less than 20% above the national poverty line and remained vulnerable to falling back into poverty. Although inequality has declined over the past 30 years, distribution in Thailand remains unequal compared with many countries in East Asia. Significant and growing disparities in household income and consumption can be seen across and within regions of Thailand, with pockets of poverty remaining in the Northeast, North and Deep South.

Long-term economic aspirations are laid out in Thailand's recent 20-year strategic plan for attaining developed country status through broad reforms. The reforms address economic stability, human capital, equal economic opportunities, environmental sustainability, competitiveness, and effective government bureaucracies.

Some progress—including the implementation of multi-year large public infrastructure projects, setting up of a State Enterprise Policy Committee to improve state-owned enterprise governance and the transfer of supervisory oversight of specialized financial institutions to the Bank of Thailand—has already been made. Going forward, the sustained pace and quality of reforms will be crucial for translating the reform effort into the desired economic outcomes and reforms in areas such as education and competition as well as public infrastructure management and government bureaucracies will be essential to take Thailand from middle to high income. The World Bank is supportive of the reform agenda.

These efforts are known within Thailand as Thailand 4.0, a master plan which intends to free the country from the middle income trap - when middle income countries are squeezed between low wage competitiveness that dominate mature industries and rich

country innovators that dominate industries with rapid technological trades. In short, Thailand would like to move away from being a country with an abundance of cheap unskilled labor to an innovation based value economy. While it is true that Thailand enjoys an extremely low unemployment rate, many of its workers are employed as unskilled agricultural workers.

Making Thailand a high income country in the coming years will largely be achieved by attracting high tech industries that will allow the country to focus on more sustainable growth and achieve a more inclusive society. However, some are doubtful that Thailand will be able to pull this off due to a lack of a skilled workforce and other infrastructure limitations.

One high tech industry showing promise in Thailand is automotives, which is the largest in Southeast Asia and the 12th largest in the world, capable of making about two million cars per year—more than double the rate of 2004. Most of the cars made in Thailand are developed by foreign producers mainly based in Japan and the U.S. who take advantage of the ASEAN Free Trade Area (AFTA) to find a market for many of its products.

Hygiene Hangs On

The \$200 million Thai baby diaper market is largely dominated by Unicharm. The Japanese hygiene specialist currently has a 54% marketshare with its Mamy Poko brand. Unicharm also dominates the feminine hygiene market with its Sofy brand which also has a better than 50% marketshare, and the company is fiercely defending this dominance. In 2014, the company spent approximately \$30 million on 10 pieces of hygiene manufacturing equipment in Chachoengsao, Thailand, to develop more sophisticated products.

As Unicharm works hard to defend its leadership position, several other hygiene manufacturers, many of which are also based in Asia, have been eyeing up Thailand's potential. As growth continues to coincide with rising personal income, more women in the workplace, product innovation and deeper penetration in rural areas, diapers

next 29 >>>

Product News

Suominen introduces revolutionary designer series patterns for nonwovens for wipes

HELSINKI, Finland - March 22, 2017 - Suominen introduces revolutionary Designer Series pattern selection for nonwovens for baby care and household wiping applications. The Designer Series contains unique high-resolution patterns designed exclusively for Suominen by professional designers and validated with consumers to convey softness and functionality in cleaning.

Commercial production of these patterns was made possible by investing more than EUR 60 million in Suominen's production technology in North America, Europe and South America.

With the Designer Series, Suominen fulfills the modern day needs of both consumers and brands when it comes to wipes materials. Consumers desire easy choices, that is, wipes whose distinct patterns clearly indicate either softness or cleaning efficiency or both. Brands, for their part, look for wipes substrates with a compelling reason-to-believe, enabling the highest value to their marketing spend. These are the exact things Designer Series patterns and new Suominen technology were created to deliver, making Suominen's patterning and texturing capabilities across multiple platforms second to none.

"When the team started with the Designer Series, we took an approach no other company in the nonwovens industry had taken before. We partnered with professional designers whose interpretation really challenged Suominen to test what its improved production technology is capable of," Vish Mazumder, Product Development Manager, says.

"Another unprecedented step in product development for a nonwovens company like Suominen was when we went to ask consumers which patterns they found softest and most functional in cleaning. The patterns that, according to integration of multi-sourced data points, resonated best with consumers are now available in the Designer Series selection," Vish Mazumder continues.

"Design Series is the culmination of great work by so many, namely our operations and R&D teams," Jon Arendt, Product Manager, says. "With the process and consumer insights gathered, combined with customer feedback, we look forward to triangulating this into products that deliver meaningful business results for our customers. We believe that working in this way continues Suominen's paradigm shift to being a market driven product leader."

(Source from: "www.Suominen.fi")

Beaulieu Fibres International launches new products and previews future innovations for hygiene nonwovens at INDEX™17

WIELSBEKE, Belgium - March 9, 2017 - Beaulieu Fibres International will unveil a pioneering new fiber-platform at Index™17 and offer first detailed insights into the future-focused hygiene products arising from its on-going investment in innovation and manufacturing capabilities.

From May 2017, Meralux fibres will be added to the Meraklon product portfolio. First test results show that nonwovens made with the new Meralux fiber combinations have a higher loft/bulk. Meralux's coverage is unique and provides nonwovens with a very closed surface, without containing additives like TiO₂. With the higher loft and unique coverage, softness will be provided by the choice of raw materials. Equipped with all these features, Meralux allows basis weight reductions without losing performance.

In line with the further diversification of its products, Beaulieu Fibres International is set to produce short cut fibres for hygiene application as of summer 2017. These will be available in cut lengths of 3-24mm in polypropylene (PP) mono and BICO.

To add to its new products for 2017, the Meraklon portfolio will expand further with the launch of new polyester (PET) core BICO fibres. They will come on stream with Meraklon's new state-of-the-art, long line at the company's site in Terni, Italy. The EUR 30 million investment to extend production capacity is currently underway and is

Product News

scheduled to commence operations during this year.

within the next 10 years.

Petra Bohle-Stricker, Global Sales Director-Hygiene, Beaulieu Fibres International, comments: "Beaulieu Fibres International is continuing to strengthen its position as a global supplier for polyolefin fibres. Investment in fibres' production is an important driver for ensuring we meet future challenges and customers' needs. In the four years since Meraklon's takeover, Beaulieu Fibres International has successfully adapted it to the level required to be a leading market player. We have broadened the portfolio significantly to better serve the future market needs and are continually innovating to ensure we go the extra mile for the nonwovens industry".

(Source from: "Beaulieu International Group")

DSG International, the market leader in adult diapers, has not only been working on improving its product line - with the launch of day pants and other new products, but through education, offering seminars on incontinence care management.

DSG has also focused on improving its baby care line. In 2016, the company launched Baby Love nanopower, diapers featuring a patented mega thin sheet and followed this launch with a pant style version. The No. 2 largest marketer of baby diapers in Thailand, DSG is working hard to close the gap between itself and leader Unicharm.

(<<< continue 27)

have become one of the fastest growing emerging retail markets in Thailand.

At the same time, the rapidly growing aging population - currently 15% of the country's 68 million residents are over 60 and that percentage is predicted to rise to 20% by 2020 - as well as a greater acceptance of adult incontinence is helping propel growth in this disposable market. In fact, many experts believe that the adult diaper market will be bigger than baby care

Also in Thailand, Daio Paper said last year it would add a sanitary protection site at Elleair International, its Thai subsidiary which has been making baby diapers since 2011 as well as wet tissues and wipes since last year. The investment in the new line has been valued at \$10.5 million and, with it, Daio is hoping to capitalize on growth in the Thai feminine hygiene market, which is growing 5% per year. Other efforts by Daio, including the introduction of nighttime and underwear style products in Thailand and the launch of baby diapers in India, are reportedly a part of the company's goal to double its overseas profit in the next two to three years.

(Source from: "www.nonwovens-industry.com")



Asia Nonwoven Fabrics Association



is the only organization which represents the nonwovens industry in Asia



aims to take a more important role toward expanding the growth of the nonwovens business for the benefit of all members

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行业信息

INDEX'17-欧洲国际非织造材料展览会报道

2017年欧洲国际非织造材料展览会INDEX于4月4-7日在瑞士日内瓦举行，中技协非织造材料专委会委托上海希达科技有限公司组织了52人的参展、参观团。中技协非织造材料专委会的专家还参加了4月3日举行的ISO TC38/WG9工作组关于ISO 9002非织造材料定义的工作草稿编制会议。

2017年欧洲国际非织造材料展览会概况

欧洲国际非织造材料展览会（INDEX）由欧洲非织造材料协会（EDANA）主办，每3年举办一届，自1984年首届至今，该展会已举办12届，展品涉及非织造原材料、卷材、终端制品、设备及辅料等整个产业链。本届展会展商较上届展会增加10%以上、吸引了来自41个国家和地区的650余家展商，展出净面积22,000平方米，到场观众12,500余名。INDEX展会融产品展示、技术和市场交流于一体，并发布2016年全球非织造材料产业发展信息以及举办涉及医疗卫生用、交通工具用、土工用和过滤非织造材料技术交流演讲，使展商及参观者了解了世界非织造材料技术和市场的发展前沿。

当前，全球非织造材料市场已经形成美洲、欧洲和亚洲三足鼎立之势，北美洲、欧洲和亚洲的非织造材料产量之和占全球总产量的90%以上。2016年，北美和欧洲地区的非织造材料产量小幅增长，产量分别达到227万吨和238万吨；2016年日本非织造产量同比下降0.6%、达34万吨；韩国非织造材料产量同比增长4.2%、达22.5万吨；印度和印度尼西亚2016年非织造材料的产量分别达到36.5万吨和8.1万吨。而中国作为非织造材料最大的生产国、消费国和出口国，2016年非织造材料的产量仍保持了两位数的增长，达到326万吨，年增长率10.85%、高于GDP增长率。

据EDANA总经理Pierre Wiertz分析：由于全球改善空气污染、室内空气质量和净水意识增强，用于汽车、建筑物及建设工程等工业过滤需求增长，自2008年金融危机之后，全球及各大洲非织造过滤介质需求平均年增长率超过9%。

4月4日INDEX17开幕式后在EDANA展位上还

举行了INDEX17创新奖颁奖仪式。创新奖由专家评审委员会评出。

1) 非织造卷材类创新奖授予

* Berry Plastics 的“NuviSoft”

采用专利熔纺技术、独特长丝几何剖面、超柔粘合的非织材料，具有轻量化、高覆盖率、低透气率，紧卷装并改善印花性。

2) 以非织造材料制成或结合非织造材料的复合产品创新奖授予

* Glatfelter 的Dreamweaver Gold 20 微米厚度的超安全锂离子电池隔膜，这种非织造隔膜为包括太阳能电池、电动车和袋式电子设备的储能电池提供了更佳应用寿命。

3) 与非织造工业和复制产品相关的原材料或组件类创新奖项授予

* Magic 的Spongel 利用可再生资源加工的高吸收、保水生物基材料



4) 与非织造产业关联的机器创新奖项授予

* GDM 的Rear Wing Zero Waste 婴儿尿片后翼零废料生产线

5) 可持续产品创新奖授予

* Hassan 集团的Self Sufficient Research Tents 一种改进了热和声绝缘性、阻燃、具有呼吸功能以及抗菌性能的帐篷非织材料

6) 可持续加工工艺或管理实践创新奖授予

* Suominen 公司的Blind Hiring recruitment process

一种增加了劳动力的多样性，保证所有性别、种族和年龄应聘人员有平等的机会的员工招聘过程。



行业信息

展会期间，中技协非织造材料专委会的领导重点走访了Suominen Corporation、Berry Global Inc、Freudenberg Performance Materials、Ahlstrom Corporation、ANDRITZ、DILO、REIFENHÄUSER、大连瑞光、欣龙控股、佛山南海必得福、浙江金三发、杭州诺邦、稳健医疗用品、山东省永信非织造材料、恒天嘉华、恒天长江生物材料、常熟飞龙、杭州新余宏机械、上海哈克过滤科技、宏大研究院等国内外企业的展位。值得一提的是：REIFENHÄUSER推出了新一代驱动非织造工业趋向工业4.0的智能化技术——RF5生产线，首条RF5生产线具有6个模头，5.2m宽，将安装在土耳其的Gulsan。

从展商展示内容可见：在各个应用分支领域非织造产品依然朝着功能化、高性价比、安全、环保和可持续方向发展。

Filtrex 17 过滤研讨会简介

展会同期，EDANA还组织召开了Filtrex®过滤研讨会。

研讨会程序如下：

5日的主旨演讲：由瑞士热带和公共健康研究院副院长、瑞士公共健康学院院长Nino Künzli教授作《空气污染与健康——对政策制订者、居民及产业界的挑战和机遇》报告

6日的主旨演讲：由英国和美国可持续非织造材料BBC研究的咨询和分析编辑Adrian Wilson 作《全球过滤市场及非织造过滤介质重要性：产业结构、领军企业及其纵向的集成和创新力》报告

连续两天的六场报告会：

- 1) 细颗粒物及超细颗粒物对人类健康和影响主题报告会
- 2) 标准化主题报告会
- 3) 质量保证和测试主题报告会
- 4) 纤维质过滤介质主题报告会
- 5) 以应用取向的解决方法主题报告会
- 6) 非织造过滤介质的创新主题报告会

过滤研讨会期间还举办了有关过滤领域创新主题的小型展览、并评选了创新奖。

Filtrex 研讨会提名的创新奖为：Ahlstrom Tampere 的Ahlstrom Statguara; Europlasma 的

Nanofics; Freudenberg Filtration Technologies 的Microair Blue; Johns Manville 的三层结构混合过滤介质；Sandler 的Sawascree enAIRsave。在Filtrex 5日的晚宴上举行了颁奖仪式。

研讨会概况

在4月4日-6日的三个下午还举行了非织造材料应用分支领域研讨会。

1. 4月4日下午交通运输领域研讨会的主题为：中国已成为全球化的驱动力。Adrian Wilson作《中国在汽车内饰市场具有影响地位》的报告。

2016年，上海申达（国有控股、在上海证交所上市）通过其在英国的分支机构并购国际汽车零件（International Automotive Components-IAC）在软内饰和声学零部件业务70%的股权、IAC则保留了其30%股权，从而成为在全球有21家制造厂、4个技术中心，年销售额达10亿美元、产品包括汽车地毯、声绝缘材料、行李箱盖板和车厢内饰的合资企业。这一新的合资企业将使申达从一家中国汽车软内饰和声绝缘产品制造商一跃转变成全球汽车工业供应商。得以进入欧洲和北美市场。上海申达已成为可以为全球几乎所有OEM、中国最大的汽车内饰供应商之一。

YFAI—Yanfeng Automotive Interior 延锋汽车内饰件

2012年Visteon（美国伟世通）与上海延锋以50/50建立合资企业，2013年12月Visteon将其50%股权出让给中方，2015年7月Johnson Controls（美国该领域的另一家领军企业）将其汽车内饰业务分割转让给延锋并命名为Yanfeng Automotive Interior(YFAI)—延锋汽车内饰件公司、总部设在上海，YFAI已成为在20个国家拥有140家制造工厂和技术中心、雇员超过28000人的全球化公司。

由上海延锋和申达驱动的转型已成为汽车工业全球化新时代的代表。此前，中国还没有一家可以进入亚洲之外汽车制造商的一级供应商。中国汽车非织造材料及纺织物已确立汽车软内饰和声绝缘零部件领域的领军地位、开创汽车工业高水平国际化的先河。在汽车轻量化以及减少排放满足新规方面，非织造材料所起的作用日趋重要。

行业信息

2012年，美国US CAFF 标准颁布，要求汽车制造商到2025年将轻型车平均燃油效率提高到54.5mpg。美国环保局计算，按此程序要求，在2017-2025期间的可节省40亿桶原油、减少汽车排放温室气体20亿吨。

期间，欧洲标准已于去年强制性启动，其目的是要使新型欧洲轿车和厢式车减少排放、更“绿色”，这一新标准与欧5标准比将使柴油发动机的氧化氮排放进一步显著减少67%。

中国的情况同样如此，计划在2018年主要城市开始实施以欧6为模板的排放标准。轻量化的非织造材料在全球汽车平台的许多领域通过取代其它材料取得持续成功。

欧洲、北美和日本以非织造材料基零部件一级制造商在中国仍看到大量机会。2006年至2015年间，IAC已在中国开办了不少于16家新工厂。总部在法国的Faurecia是一家在汽车座椅、内饰和其它零部件的领军一级制造商在中国也表现强劲，到2014年其在中国已拥有39家工厂和4家研发中心，雇员总数达12800人，今年通过后续进一步投资、该公司在中国的雇员将达17000人。

日本在中国的汽车市场也是制造巨头，仅中国丰田Toyota Boshoku旗下就有18家关键制造企业，16家是在2000年后建立的、其中6家是2012年以后新建的。对丰田汽车关键内饰物零部件供应商总部位于日本的Toyota年销售额超过了100亿美元，在过去的廿余年中成功经历了日本汽车品牌快速成长。

同时期，以瑞士为总部的Autoneum是另一家声、热绝缘非织造材料的领军企业将在今年夏天在山东烟台投产其第七家工厂。该工厂将年产25000套内饰件以及地毯系统。Autoneum的所有工厂实施可持续生产工艺，在烟台工厂的以聚酯纤维或混和纤维的非织造材料生产废料可以循环再使用。

对Borgers 这家全系列非织造产品生产企业言，在中国建立基地是势在必行的。2015年，总部位于德国Bocholt 的Borgers 刚度过150年周年庆，2016年达到创纪录的发展节点、2015年取得76500万欧元的新销售纪录

及史上最高雇员数。2012年，Borgers在中国浙江宁波投产第一家生产非织造内饰件的工厂，以后又在河北廊坊投产了第2家工厂、为Mercedes供应Triflex内饰件，2014年Borgers第三家工厂在辽宁沈阳投产、为BMW生产非织造轻罩内衬、底盘屏蔽件和后座椅内饰，以非凡的快速进入中国市场。

2. 4月5日下午举办了医疗用非织材料论坛。Adrian Wilson 作了《可穿戴技术和e-纺织物开始在吸收性卫生和医疗领域应用》的报告。Smith&Nephew是一家创口护理和相关医疗技术公司，2016年销售额达47亿美元，宣布将进行战略投资以开发、用于防止压迫溃疡和伤痛的独特的一次性无线监测系统。荷兰的LifeSense集团开发了智能型女性失禁产品Carin。这只是传感器如何使产品变成普遍存在的两个例子，这也提示非织造材料制造者、特别是如卫生、创口护理等终端产品市场存在巨大的机会。传感器以及可穿戴技术会撑起明天的“一次”性产品市场。

3. 4月6日下午在土工合成材料分支领域研讨会上Andy Rhodes作了《土工合成材料助推可持续发展》报告。据Grand View Research 的市场报告：2015年亚太区对全球土工合成材料市场的贡献率40%。EDANA发布的信息、每年销售的非织造土工材料达750平方千米、面积相当于（85,000）足球场。60%非织造土工材料用于道路建设工程。

如今，70%的道路建设使用非织造材料、相当于少排放480万吨CO₂。如果欧共体所有道路建设都使用非织材料，CO₂减排将达68亿吨。使用非织造土工材料不仅有利于环境，同样也是较传统的砂砾材料便宜得多。

使用砂砾材料的成本在15-30欧元/m²，而可持续的非织土工材料成本仅15-30欧元/m²。

国际土工合成材料协会（IGS）主席Russel Jones博士还作了《非织造土工材料对全球可持续发展的贡献》的报告。IGS认为：全球多达50%的碳排放与基础设施发展有关。Jones指出：非织造土工材料在基础设施建设的碳足迹发挥了重要作用，使得道路的寿命更长、保护环境、控制表土免遭侵蚀和改善水的保持。

INDEX'17 四天的展会、研讨会交流和传达了大量创新信息、展示了丰富多彩的新颖非织造产品，参展中国企业及参观者均收益多多。

(ANFA亚洲非织造材料协会工作委员会主任 向阳)

2017 印尼国际纺织展览会—INDOINTERTEX与非织造材料系列研讨会报道—印度尼西亚非织造材料协会(INWA)

印尼非织造材料协会 (INWA) 作为唯一为印尼的非织造行业提供支持、新成立的非织造材料协会—首次参加在雅加达举办的印尼国际纺织展览会。许多INWA成员充分利用这一机会、联合组织了本次非织造材料展区，并展示应用在不同领域的各种非织造产品。

INWA展会参与者名单：

- Anugrah Prima Perdana有限责任公司
- Eternal Gelora Putera有限责任公司
- Gerindo Dwidaya Manunggal有限责任公司
- Hadtex有限责任公司
- Hatech Nonwovenindo有限责任公司
- Kuralon Indah Sejahtera有限责任公司
- Lani Teduh Sumber Indah有限责任公司
- Pulcra Chemicals Indonesia有限责任公司
- Superbtex有限责任公司

INWA和PERAGA EXPO组织了一次成功且全面的全天研讨会，主题为“非织造技术动态与机遇”。本次研讨会于Indo Intertex 2017展览期间联合举办。

通过研讨会和大量的网络活动，鼓励行业参与者，教育机构和政府机构之间的互动，INWA已被业界人士认可为企业的重要活动。

参观者对展览和研讨会非常感兴趣。每天接待40位参观者到INWA展位参观，有150名左右参会者参加研讨会，从非织造布生产商，机械供应商，纺织技术学校到行业代表部等等。

六个主题演讲嘉宾与报告：

1. 欧洲非织造协会的市场分析与经济事务总监Jacques Prigneaux 先生作《从欧洲和全球视野看非织造业的发展》报告
2. 印度尼西亚Geoforce有限责任公司运营总监Bapak Dandung Sri Harninto作《非织造土工布在印尼基础设施开发项目中的应

用》的报告

3. ANFA亚洲工作委员会主任向阳先生作《非织造过滤行业的现状及发展趋势》的报告

4. Daiwabo有限公司Hiroko Makihara女士作《非织造材料在卫生方面的应用》的报告

5. 东洋纺织有限公司无纺布部总经理Shigeki Tanaka先生作《非织造材料技术开发》的报告

6. 陈弘坤先生，台湾不织布工业同业公会理事长、台湾协蕊实业股份有限公司总裁作《台湾非织造市场》的报告

INWA成员对本次展会印象深刻，并期待在不久的将来参加类似的活动。希望下次活动可以展示更多的非织造产品，有更多关于最新非织造技术的讨论以及更多关于非织造材料成功应用在各种领域，例如：农业，汽车，卫生，建筑材料，土工布等方面的讨论。



访问印尼非织造材料协会—INWA 展区的参观者了解协会成员企业在展位上展示的所有产品

安德里茨提供浙江百联无纺科技有限公司一条完整水刺生产线

格拉茨3月13日讯，作为国际技术集团安德里茨一部分的安德里茨无纺布获得中国浙江百联无纺技术有限公司一订单。一条从开松混合到烘干的完整交叉铺网水刺生产线。生产线工作门幅3.6米，开车生产安排在2017年的第四季度。新的无纺布生产线将用于擦布和卫材生产，年产量5400吨。



安德里茨neXlace aXcess 水刺生产线的交叉铺网配置

(>>>下转49页)

华峰公司向Dilo集团预定了10条生产线

自2015年以来，华峰超纤材料股份有限公司的江苏启东新工厂向迪罗集团共订购了10条完整的、最先进的、高产能的针刺生产线。

(>>>下转47页)



研讨会开幕式由INWA主席Billy Hidjaja先生主持并介绍INWA委员：外交事务协调员Gerd Wagner先生；国内事务领域协调员Albert Arthur先生；秘书长Hengky Lau先生



INWA委员会与在研讨会上作演讲的所有主要发言人合影



非织造材料系列研讨会的氛围

市场动态

Sandler在Techtextil 2017展会上展示——在家的非织造布世界

在今年的Techtextil展会上，德国非织造生产商Sandler公司邀请参观者到其展台观看了其用非织造布创新的花园：是家庭和办公室隔音，交通运输和过滤的高科技材料的一个真正的花束，等待专业观众到创新非织造布的家中游览。

在家里是一个口号，因为Sandler非织造布应用广泛，使我们的家更舒适。fibercomfort®绝缘材料应用于屋顶和墙壁，为房间提供舒适温度，同时有助于节约能源。在隔墙方面，隔音非织造布创造最佳对话环境。这些产品解决方案还给办公室分区提供了一个更安静的每天工作环境，另外也可作为单独房间设计的设计特点。该系列产品为每种应用都提供了对的声学非织造布：柔软和体积大，自支撑紧凑；具有特别平滑的开孔表面；白色、黑色或大理石般的色调，这些产品可以根据客户要求进行调整。它们也可以用印刷或浮雕图案完成，或者与不同的织物层压。过滤介质提供清洁的空气来呼吸，在家庭以及工业建筑物中获得最佳的室内空气质量。Sandler针对此应用的最新发展是enAIRsave®袖珍滤芯。除了优良的过滤性能外，还减少能量消耗。

Sandler非织造布可以确保旅途中驾驶的舒适性，特别是长途旅行，例如：汽车、公交车、火车或工地上的工作车辆。高效的吸声器会抑制发动机和驾驶噪音，提供令人愉快的声响水平。新的sawasorb®高级非织造布在低厚度产品下实现了这种隔音级别。因此，它们适用于狭窄的安装空间，并且为了更加的可持续发展，使用更少的原材料的产品解决方案。轻质的sawasorb®优质外部吸收性非织造布，不仅在低厚度产品方面具有声学效率，而且还具有疏水性和疏油性，特别适用于车轮内衬或底座护罩的外部方面的应用。用于车辆座椅内饰的sawaloom®非织造布为车辆提供了舒适度。透气和防潮，这些材料对座椅的最佳微气候都有帮助。该产品线的最新发展具有特别柔软、笨重和泡沫状的质量等特点。采用皮革缝合，这种非织造布产生了特别显著的3D外观。

在Sandler花园中收藏的样品等着人们去发

现，吸引着参观者去感受不同之处。在这里，卫生用品和擦拭物的柔软和亲肤性非织造布完善了非织造产品范围。让人们感受使用Sandler非织造布作为您的应用的多种可能性的启发。

(资料来源: "www.sandler.de")

American Roller公司启动新版防粘涂装产品系列

在威斯康星州，联盟格罗夫，作为离子涂层释放和牵引工业涂装的行业之父，American Roller很高兴地宣布等离子涂层PC-43000系列的发布。

这个新的涂层是为固定和旋转部件设计，包括成网过程的工业罗拉。这个涂层家族以新的低摩擦系数配方，具有光滑、易清洁，表面光洁为特点。该系列包括四个不同的表面材质和硬度范围的组合。这个涂层相比Teflon®和前几代等离子体产品具备了耐化学性、持久的防粘和清洁能力。

这种耐划伤性涂层可以消除超细纤维和其他微粒的附着和积累，提高了耐腐蚀性能。

“为生产工艺提供附加值的工业涂层技术存在很多的机遇，”产品经理 John Meggers解释说，“PC-43000的性能超出了我们的预期，这为行业带来的改善是令人兴奋的。”

(资料来源: "www.textileworld.com")

Madaline—来自Mogul的新型非织造产品

在土耳其吕莱布尔加兹，Mogul公司Madaline非织造材料注定是潮流的领导者。想象一下，一种非织造布被看作是一种传统的纺织品，具有相似的手感和悬垂性以及无纤维磨散的缝制能力。除了与机织物的相似性，Madaline还拥有优异的过滤和阻隔性能——就像有着纺粘布强度的熔喷布。

Madaline使用最先进和专利双组份技术来挤出独特设计的长丝，然后通过高压水射流下开纤，形成原纤维、经缠结、最后将微细长丝加固成非织造材料。

Madaline的微细长丝比人的头发要细100

市场动态

倍，这是**Madaline**独特性能的关键。这种非织造材料的致密结构提供了很好的阻隔和过滤性能，且由于是微细长丝，使其具有良好的水分管理能力。具有可吸水性、快速干燥和很好的透气性能。另外**Madaline**具有耐洗性和有很好的保温性，抗风和防紫外线。

Madaline优异的属性使它特别适用于整理、染色、印花、裁切和缝合工序，就像传统的纺织品。这种新的非织造材料具有非常光滑的手感，接近传统的纺织品，具有优良的可染色和印花性能，且坚固耐用，并没有“粘扣”效应。

Madaline技术采用聚酯和聚酰胺形成两种不同的纤维形状，“混杂型复合”或“多叶形复合”具有：

- 更高的拉伸和撕裂强度（超强防撕）；
- 更好的透气性；
- 更低的能耗；
- 在多模头系统中没有分层；

Madaline非织造材料可被广泛地应用于：

- 服装（高性能户外服装、牛仔裤、运动和休闲服、制服、工作服）；
- 家用纺织品；
- 工业用；
- 大幅数码印刷媒体标志，广告和印刷标签；
- 床罩（抗过敏和防尘螨）；
- 医用（服装、擦拭巾）；
- 干擦巾、毛巾（运动毛巾、工业专用清洁布）；
- 过滤；
- 专业包装（无刮痕）；
- 遮阳板（帐篷、遮篷、避难所、车辆覆盖）和百叶窗；
- 涂层基布和合成革基布；
- 墙纸；
- 汽车应用（内饰）；
- 汽车和建筑物隔音。

（资料来源：“**Mogul Nonwovens**”）

Autefa Solutions在INDEX2017展会中展示非织造解决方案

Autefa Solutions是德国领先的纺织机械公司，因公司以开放、工程设计、工业物流、制造以及自动化解决方案而闻名。在2017的**INDEX**展上展示其最新的非织造布解决方案，**INDEX**是全球领先的非织造布

展会，在瑞士日内瓦举行。

该公司展示了一种新水刺加固系统**V-Jet**，节省了30%水刺所需的能耗。和标准的水刺板相比，这种专利设计的水针板使压力降低，同时保持产品质量不变。水刺工艺采用最优化的方型滚筒式干燥机**SQ-V**，走相同的轨迹时比普通滚筒干燥机具有更好的能源效率和干燥性能。

Topliner系列交叉铺网机**CI 4004 SL**以高达130米/分钟的输入速度和精准的重量分配为特点。这些优点对于用作轻定量产品的水刺线尤为重要。可以连续监测网层的搭接，最大限度地减少不良品，并节约材料。

还有一个越来越受追捧的卫生材料热风生产线，如导流层。这些材料用于婴儿尿布、妇女卫生巾和成人失禁产品。**Autefa Solutions**带式烘房的主要优点是均匀的气流和可精确调节温度的分布，保持柔软或获得较高密度。

对于针刺非织造工艺，**Autefa Solutions**提供了**Fehrer Stylus ONE**针刺机，可以适用于所有的针刺应用。**StylusONE**的可靠和经济性满足了市场的需求。最高可达1200刺/分钟的**StylusONE**针刺机，以生产效率高，寿命久和齿轮箱免维修而脱颖而出。

Autefa Solutions提供非织造布完整生产线及单机。应用领域包括合成革、过滤产品以及造纸毛毡、汽车毡、土工布、地毯、绝缘毛毡以及卫生用非织造布等。

产品范围包括纤维预处理机械、非织造布梳理机、气动成网机（气流式）、交叉铺网机和针刺机。产品范围还包括热粘合、干燥以及切割、卷绕、包装技术等设备。

（资料来源：“www.technicaltextile.net”）

无纺布龙头企业AVGOL强调在以色列生产厂投资数百万美元增长计划的重要性

Avgol是全球卫生用非织造布龙头企业，将在以色列**Dimona**新开设价值6000万美元的生产基地，目的是扩大公司在欧洲、中东、非洲和南美洲的客户群。

市场动态

该生产基地将运行最先进的Reicofil 4生产线，采用SSMMS技术和双锡林配置，使Avgol能够为该地区的顾客提供最先进的婴儿纸尿裤、成人失禁垫和女性卫生用品。这也使其在以色列的生产能力能够达到其他地区的水平。

该生产线于三月份开始运行，预计2017年7月前实现商业化。

Avgol的销售和市场营销副总裁Gilad Frenkel表示：“Avgol致力于扩大跨国业务范围，并提升在欧洲、中东、非洲地区和拉丁美洲地区的地位。为了达到这一目标，我们需要具备世界一流水平的运营模式，从而能够在多样化的市场中为客户提供他们所需的最佳新产品。”

“新生产线意味着Avgol将能够提供更广泛的材料选择和解决方案，这展现了我们的专业化，从而能够应对消费者和品牌需求的不断变化。”

对于目前的市场形势，Gilad表示，创新是受客户的明确的需求和要求所驱动的。他说：“在柔软度、干燥度、防漏、成本/价值和轻质方面，从满足客户偏好的方向进行创新。在柔软度和质量之间寻求平衡点以达到制造商和消费者对舒适度的高要求是关键的技术挑战。一旦找到这一平衡点，这将会提升他们（制造商和消费者）对该品牌的忠诚度，而Avgol的尖端软技术使我们能够在全球提供满足这一需求的高性能，柔软触感的产品。”

“这些技术涉及双组分，特殊的软图案和软化学。Avgol在以色列、美国、中国和俄罗斯的现有生产基地为32个国家提供制造商和品牌。”

(>>>下转41页)

BIT从Laroche和TechnoPlants购买了一条生产线

Bouckaert Industrial Textiles (BIT) 是非织造布卷材制造商，专门生产隔热、隔音材料，特殊过滤材料，汽车和工业市场上其它终端产品，从法国Laroche公司及意大利TechnoPlants S.r.l.公司购买了一条3.4米宽的气流成网生产线。这条生产线投资300万美元，是公司成立28年以来最大的一笔

投资，每年将生产800万到1000万磅的材料，将增加15个新的就业岗位。

BIT, Brickle集团的一个部门，最近购买了一条新的气流成网生产线，以提升其供应的产品。

生产线的交付和安装于2017年1月开始，预计将于4月份开始运营，主要生产用于隔热和隔音市场的非织造材料。额外的容量将用于特殊过滤材料和传送带产品。

“由于目前客户不断增长的业务和一些现有生产线不能提供的材料。”BIT总裁Max Brickle说，“是为了满足我们客户的真正需求才产生的投资决定。”

(资料来源:“www.textileworld.com”)

Bicma卫生技术升级

Bicma卫生技术有限公司是一家私有的德国机械制造商，在INDEX™ 17展览会展示一些新的开发成果，包括：

- 在面层、采集层和其它材料上的多色一致柔性印刷；
- 具有高量SAP的核心超薄高性能技术；
- 婴儿尿裤设备和升级的所有产品概念在三个性能水平上表现：形状或矩形弹性耳状，或经典解剖形状；
- 规模小的经济型机器以及高产量的精密机器；
- 适用于女性或男性消费者的失禁护理垫设备；
- 成人尿片设备及其升级技术，体现了现代产品概念的应用，增加了护翼和预先折叠的弹性绑带；
- 基于特定新技术的智能快速更换尺寸的解决方案；
- 灵活的组合设备将女性护理和失禁产品，成人尿裤和内裤，成人尿裤和底垫系列产品结合在一台设备上；
- 分析和升级现有设备，提高效率和产品设计；

Bicma是高品质设备和升级技术的领先供应商。该产品组合包括制造优质婴儿尿裤，失禁护理产品，成人尿裤，女性护理产品，底垫，肉类产品垫，宠物垫，护理垫和类似产品的设备。该公司表示，所有产品都可以使用新的Bicma机器，也可以升级任何品牌的现有生产线。

(资料来源:“INDEX17”)



BIT 新气流成网生产线

市场趋势

致优推进其Dri-Fit技术

Dri-Fit技术在女性护理以及失禁产品中通过调节使用者皮肤的微环境来促进皮肤的健康

致优消费性产品以及它的隶属公司通过其材料品牌Dri-Fit，为吸收性卫生产品的性能带来了新的标准。Dri-Fit的创新性可见于盛行的失禁产品、在售的女性护理品牌和尿失禁产品，使穿着者的皮肤与空气通过薄层进行流通、来帮助提高皮肤的舒适健康。通过创新性天然和人造纤维的混合，Dri-Fit可以减少压力、湿度以及温度，从根本上保持皮肤更加干爽、舒适以及健康。

作为一个重要的女性护理以及失禁产品的零售品牌的生产者和提供者，致优集中在通过开发Dri-Fit技术创新，极大地促进零售品牌的热情，Dri-Fit不仅促进了零售品牌的突破性创新，也促进了更多种类商品销售。事实上，根据Mintel的报告，18岁到36岁的消费者表示，他们更加愿意去购买零售商的品牌，42%的消费者觉得零售商的品牌产品比那些所谓的名牌更加具有创新性。

致优的发言人说：“在千禧一代引导对零售品牌产品的需求时，我们同时越来越关注老年消费群体，我们想帮助所有年龄段的消费者，让他们在经历这段时期以及失禁的时期，能够更加的自然，作为女性护理产品以及失禁产品的零售品牌的生产者和提供者中的佼佼者，我们希望以Dri-Fit为logo的产品能够为消费者提供一个创新、可接近的、承担得起的一个选择。”

为了能够更加让消费者了解Dri-Fit的创新性，致优为Dri-Fit开展了首次全国性运动，强调了Dri-Fit技术在流行的零售品牌的女性护理产品和失禁产品的应用，它使消费者“感觉更加自然”。品牌的新网站上也提供了Dri-Fit创新技术背后的科学的深入探讨，同时也有对Dri-Fit性能的统计分析。这场广告活动旨在让消费者了解Dri-Fit品牌产品背后独特的运用天然和人造纤维混合技术，帮助消费者增加有关皮肤微气候方面的知识。

Dri-Fit创新技术通过棉纤维—增强纤维的复合，可以提高皮肤的健康以及降低皮肤

的不舒适感，它可以提供五倍的干燥保护内衣产品，可以在失禁垫产品中锁住20%的湿度。结合该项技术的失禁以及女性护理产品通过将棉纤维以及人造纤维独特的混合，可以在保证使用者感觉到干燥的同时又可以锁住湿度。Dri-Fit产品具有强大的吸收芯层，可以吸收其自重30倍以上的水分。运用于卫生巾、失禁垫以及防护内衣，Dri-Fit产品防止泄漏、保持干爽，保护皮肤健康。

将Dri-Fit技术应用于防护内衣、失禁垫/衬垫，超薄型护垫以及厚型护垫，卫生护垫等女性护理以及失禁产品，在主要的食品，药物，批发，零售，电子商务以及俱乐部等相关产品中找到。可以通过寻找Dri-Fit的logo，很容易的找到运用了这项技术的产品。

(资料来源: "www.nonwovens-industry.com")

印度纸尿裤市场有望发展

尤妮佳妈咪宝贝纸尿裤力压金佰利好奇纸尿裤

根据“Bonafide Research”最新的研究报告“印度纸尿裤市场展望，2022年”，在过去的七年时间内，印度纸尿裤市场的复合年增长率超过了20%，这个很健康的增长率来源于印度每年数百万的新生婴儿，越来越高的用即弃产品的收益以及印度母亲对医用卫生材料越来越好的意识。

虽然印度有12亿的巨大人口数目，但是用即弃的纸尿裤的使用量和其他发达国家相比仍旧很低。然而，厂家依旧相信印度会在将来成长为一个比中国还大的市场。这些潜在的增长促使主要的厂家在产品的创新性和发展上进行巨大的投资，这样可以使自己在和对手的竞争中占据上风。主要的品牌都已经运用电视广告去宣传他们的优势，已经引起了印度对纸尿裤的广泛认识。

印度的纸尿裤市场一直以来以短时间大浮动著称。早先主要的生产厂家是宝洁公司的帮宝适纸尿裤以及金佰利公司好奇纸尿裤品牌。然而，根据这份报告，尤妮佳的妈咪宝贝纸尿裤，作为最新输入的品牌，已经逐渐超越金佰利公司，成为一个最大的生产厂家。

市场趋势

尤妮佳印度公司作为尤妮佳旗下的一个子公司，在印度领域有其两个纸尿裤品牌，为婴儿尿不湿的Mamy Poko以及Lifree的成人尿不湿品牌。从2009年，尤妮佳以非常强大的劲头进入纸尿裤市场以后，在印度已经获得了极大的增长。在2013年—2014年的财报表中，公司由于推进经济型用即弃纸尿裤，分别获得了100%和80%的年度增加率。尤妮佳印度分公司将通过扩大其销售领域到新的消费者，推广其已经具有很强地位的裤装用即弃纸尿裤来获得其继续增长的目的。在2016年，尤妮佳第二家工厂已经在印度南部建立。这个新的工厂是继续增强其本地产业结构，使其具有在全印度范围内销售的能力。

(资料来源: "www.nonwovens-industry.com")

mBrace™ 软化添加剂为无纺布生产商提供了舒适的选择

英国曼彻斯特，2017年3月16日，奥美凯欧洲公司，作为一个全球性的为合成纤维提供颜色和添加剂的公司，4月4日—7日在瑞士日内瓦展览中心举行的INDEX17展会上展示其一系列的mBrace™的柔软添加剂。这些产品为全球非织造布提供使用范围、工艺选项及柔软程度。

奥美凯的非织造发展技术专家，Dhru Mantheni说，“我们mBrace生产线上的产品供应可以分为两个部分。第一部分可以让你通过降低摩擦系数来获得需要的柔软等级，而其他开发团队仅赋予产品棉柔的手感。在更高的使用水平条件下，mBrace的第一部分产品可以同时携带一些附带的功能，比如防静电以及亲水性等。我们已经开发了具有热稳定性的产品，可以让不影响其他材料性能的同时，为用户提供一个合适的柔软度。”

mBrace自从2013年引进之后，已经获得了发展。非织造生产厂家已经为它们的材料增加柔软度期待已久，特别是在一些和人类皮肤接触的应用中。奥美凯的mBrace产品为目前出现的各种需求选项给出了答案，适应了当今市场许多不同最终用途的产品。

Mantheni继续说：“我们的mBrace可以允许你通过添加剂的使用量来调节柔软度，为了更好的柔软度，我们推荐使用

1%-3%，当使用到4%-5%时，生产厂家可以在获得柔软手感的同时，获得防静电以及亲水性的效果。”

mBrace产品的第二个部分是基于一个广为接受的工业技术。母粒中热稳定剂的浓度以及最终使用量可以根据顾客的特殊要求来定制。这种添加的灵活性有助于在不影响其他工艺条件的情况下获得最佳的柔软度。

奥美凯的市场部经理Robert Baldy说：“自从mBrace已成为目前产品大家庭的一员，增加了我们添加剂产品的灵活性，用更适用的产品满足顾客需求。如果顾客有特殊的性能要求，甚至说他们希望通过一个母粒混合物来获得多重功能。奥美凯的创新性解决方案可以为他们提供精确的需求。”

mBrace品牌持续为满足顾客的需求而成长，奥美凯目前在开发一个mBrace产品，可以提供棉柔的手感。在欧洲，所有供货的mBrace产品都符合欧盟法规（REACH），并可提供一系列的包装选项。

(资料来源: "www.textileworld.com")

USTER® 纤维清洁系统预防卫生和美容非织造材料的污染

乌斯特，瑞士—2017年3月7日—一纺纱企业已经了解防止产品污染的重要性。乌斯特生产的Jossi纤维清洁系统在全球装置了3500台证实了这一点。JOSSI VISION SHIELD解决方案可以高效的去除最小的污染物，包括聚丙烯。对于非织造生产商，污染的风险可能更大，特别是在医疗以及卫生材料的应用上，比如，质量标准超级关键，零污染是必须的。

污染的纱线是纺纱企业最头疼的问题之一，当织物到达印染工厂时，合成纤维颗粒，比如聚丙烯在棉花中存在，很可能导致客户索赔和退货。当今，Uster Jossi系统已经被验证了可以用无与伦比的效率来解决这一问题，在纺纱准备过程中就可以从棉花中检测并去除异物。

早在2013年，Uster公司已经收购了Jossi

市场趋势

AG, 现在应用Uster Jossi Vision Shield 2和Uster Jossi Vision Shield T系统, 可以在几分钟之内, 采用多重检测原理剔除所有PP颗粒。Uster Jossi MAGIC EYE和Uster Jossi Vision Shield联合使用, 可靠而有效地检测出最细的白色PP污染物。几乎所有的外来物质的类型, 包括PP以及聚乙烯都可以通过Uster Jossi Magic Eye来实现清除, 同时实现最小的浪费。

非织造布生产厂商面临的特殊的挑战

和纺纱相比, 非织造产品和过程带来了特殊的挑战, 甚至是更苛刻的要求。想象一下, 比如, 卸妆棉中残留了刺痛皮肤的PP残留物, 或者说, 脱脂棉、酒精消毒棉以及非织造纱布等医疗材料中含有任何的污染物。这些问题都是完全不能接受的。不足为奇, 美国、欧洲和亚洲的医疗和卫生用品市场, 具有非常苛刻的品质要求。

随着人造纤维的发展, 25年以前, 非织造应用开始从纯棉转换为合成纤维, 起初, 顾客更加倾向于选择干燥和轻质的合成纤维材料, 近十年以来, 很多应用领域, 作为首选材料已回归采用纯棉, 特别是可能产生皮肤发红以及刺痒等过敏问题的产品。

用于这些苛刻要求用途的非织造布生产厂家, 现在需要一个有效的污染物控制系统, 在他们的产品中确保零容忍标准——尺寸大于1mm的瑕疵。非织造生产过程中, 纤维除杂是唯一可以控制污染物的方法。与纺纱不同, 可以在络筒工序中对污染物进行最后检查。因此, 非织造产品的质量完全取决于纤维除杂系统的效能, 在Uster Jossi Vision Shield系统上的投资是合理的举措。

非织造布: 在日本很大

非织造卫生材料产品的大部分设备由日本公司制造, 日本在制造医疗和化妆用品以及食品包装材料方面发挥着主导作用。Uster技术的纤维除杂的产品经理Oswald Baldischwieler说: “由于这些非织造布的应用, 日本正成长为Uster纤维除杂系统的一个市场, Uster Jossi Vision Shield 和 Uster Jossi Magic Eye的结合为生产厂家在高水平上持续不断的清理杂质提供了支持。”

USTER在瑞士无纺布展

公司在INDEX2017展会上展示Uster Jossi系统对于非织造产业的重要性。这是非织造市场最大的全球性聚会。Uster相信在棉纺中已经获得广泛认识和接受的技术也会在展览上, 也将吸引漂白棉以及其他要求严格的非织造产品的厂家的广泛兴趣。Baldischwieler说“通过应用Uster Jossi Vision Shield 和Uster Jossi Magic Eye, 将对整个生产线中的各种类型的污染物进行检查, 任何一个东西都无法逃脱这个系统的检测能力。”

(资料来源: “Uster Technologies Ltd.”)

BASF为非织造布呈献新型的水性丙烯酸粘合剂, 用于建筑和研磨材料

新型的Acronal® 2434粘合剂用于高热尺寸稳定性的非织造布

Acronal® 2434, BASF为非织造布呈献一种新型的水性丙烯酸粘合剂, 以满足高热尺寸稳定性的要求。这种粘合剂尤其非常适合建筑以及研磨的非织造布。这种创新型粘合剂扩充了BASF的分散体和合成树脂产品的系列, 在INDEX2017的非织造展会上进行展示。

尺寸稳定的非织造布

通过Acronal® 2434, BASF提供了一个自身交联的丙烯酸分散体, 适用于热应变高机械稳定性的非织造布。这种粘合剂特别适合由合成纤维(比如PET)制成的非织造布。这一新产品和其他交联系统, 比如三聚氰胺和尿素树脂相容。此外, 它可以很容易的运用到常规的薄型产品系统中。

欧洲粘合剂乳液以及纤维粘合的副总裁, Jürgen Pfister说: “丙烯酸树脂2434是我们为非织造材料顾客准备的另外一个高性能的粘合剂。特别是非织造布经受高热和机械拉伸的时候, 我们的丙烯酸分散体表现了很优异的性能。利用这个新型的稳定的粘合剂, 我们找到满足客户需求的解决方案。这样, 我们就可以帮助我们的客户获得成功。”

(资料来源: “www.basf.com”)

科莱恩公司(Clariant)介绍Mevopur®在医疗领域的应用

位于瑞士的科莱恩公司(Clariant)及其母粒业务已经推出了Mevopur®系列的颜色和

市场趋势

功能添加剂，专门用于医疗领域中的高性能纺粘纤维，包括手术服，口罩，医疗过滤产品和伤口护理敷料等。

科莱恩公司（Clariant）报导Mevopur®母粒和其化合物的相关法规文件显示其原材料的生物学评估，符合美国药典（USP）章节（VI类）和ISO10993要求，以支持其在医疗领域中使用。母粒有七种颜色：黄色、橙色、红色、紫色、深蓝色、中绿色和绿色。

“我们的产品线不断扩大和发展，现在为满足客户需求改变受控原料成分，这些原料符合严格的医疗要求，并帮助制造商找到新的替代品，创造出更加丰富多彩、舒适、功能齐全的医疗和卫生产品。”科莱恩色母业务部全球纤维营销总监Francis Baud说。

（资料来源：“www.textileworld.com”）

特雷维拉（Trevira）在INDEX2017展会：非织造材料工业纤维的新发展

德国的博宾根（BOBINGEN），2017年3月24日，来自Bobingen的涤纶纤维专业生产商Trevira GmbH在日内瓦展示了在非织造布领域的技术和应用范围广泛的产品综合计划。除了新产品和客户定制的新开发，重点是进一步开发和优化现有纤维类型，服务于重要的领域。

提供的新产品生物聚合纤维（Ingeo™）是用于填充料的硅处理PLA中空纤维。根据产品功能和材料特性来满足客户的需求，综合产品系列不断扩大干法纸纤维应用。这也适用于梳理成网的特殊纤维和造纸工业的短切纤维，重点在于改善纤维的分散性。

对于增加附加功能纤维的需求以及使用最新的原材料组合，复合纤维的需求正在扩大。对于聚酯和PLA方案，Trevira还开发了用于医用卫生部门的改性纤维（例如湿巾），其中由于其特别柔软的手感而脱颖而出。

重点还放在满足食品工业标准的纤维上，同样采用无锑聚酯纤维，其重点还在于提高产品安全性。

在INDEX2017展会上，Trevira再次参与Indorama Ventures母公司的姐妹公司的联合展示，就像重复2014年活动和2016年在波士顿的IDEA展进行的程序。在今年5月的法兰克福Techtextil展上，Trevira也在Indorama Ventures集团展位上展示。

（资料来源：“Trevira GmbH”）

Ahlstrom在咖啡袋的市场方面签署了多年期的协议

将会为Club Coffee提供基于聚乳酸的咖啡袋材料

Ahlstrom签署了一份长期的协议，为一次性的咖啡袋供应完全可降解的浸泡材料。这份合同对于Ahlstrom在快速发展的北美市场的一次性咖啡袋材料解决方案上，是一个重大突破。

根据这份多年期的合同，Ahlstrom将为Club Coffee，加拿大一家焙烧和袋装咖啡产品公司，提供生物可降解的基于聚乳酸（PLA）的产品，聚乳酸由玉米淀粉制作。生物聚合物通过与其他天然纤维结合来获得必要的抗压性能，以拥有所需的高质量和阻止残留物通过的过滤能力。Club Coffee在其屡获殊荣的PurPod100上采用了这种材料。

“我们非常自豪能与Club Coffee合作，一家在工业上以质量和创新闻名的公司。”Ahlstrom专业业务领域的执行副总裁Omar Hoek说，“为了这一成就，我们的团队付出了努力和奉献，并且对于我们是如何通过凭借有创新产品的新平台寻求增长，执行我们的战略方针，是一个完美的例子。”

Club Coffee的PurPod100最近赢得了由美国塑料工业贸易协会颁发的“创新生物塑料奖”。产品为消费者提供了咖啡产品的一次性包装材料，该材料可以在仅仅五年内，在典型的市政和工业堆肥设施中完全分解。在美国，一次性袋装冲泡咖啡的零售销量在2011年到2015年之间增长了319%，达到约46亿美元的收入。

Ahlstrom在英国Chirnside的工厂生产基于聚乳酸的材料，也可以用于茶叶袋和其他食品包装的解决方案上。

（资料来源：“www.nonwovens-industry.com”）

市场趋势

先进的辊筒技术

Martin自动化公司在INDEXTM17展览会中展示其先进的Airtertia和MDC辊筒技术。该技术拥有最低的转动惯量和基本可忽略的摩擦，为实现不间断更换辊筒和纤网运输提供了解决方案。

Martin自动化公司继续加大设备方面的销售，针对非织造布复制加工及与材料制造商，包括退卷，即用各种拼接方式使纤网传送速度达到915米/分钟。Martin系统可以集成到新的生产线中，并可改进现有流程，以实现更高的速度、张力控制和生产率。

以公司的立场看Martin自动化公司如何实现退卷、复卷、纤网运输和张力控制，有助于提高生产和效益。

(资料来源: "INDEX17")

3M公司的可持续发展业务

3M公司在INDEXTM17展览会中展示其产品和服务范围。该公司专为全球个人卫生市场提供紧固系统，为吸收性产品的主要消费对象（婴儿、老年人和女性）提供舒适、可靠、安全和灵活性的产品。

它的钩、环、弹性薄膜和胶带的产品组合设计可以满足包括婴儿、成人和女性护理部分的各种封闭设计需求。在日内瓦的INDEXTM17展，3M公司展示了这种多样化的解决方案。

据3M公司称，它在业务中高度重视可持续发展。随着世界人口的增长，特别是在新兴经济体中，必须应对能源利用率和安全、原材料短缺、教育和人类健康安全等挑战。

该公司表示，迄今为止，它在可持续发展上取得的进展及其未来的发展目标将有助于跨越障碍以改善生活，包括原材料、水、能源和气候、健康与安全以及教育与发展等方面。

(资料来源: "INDEX17")

新一代包装设备

Focke & Co是全球领先的包装机制造商，在INDEXTM17展览会中展示了其最新的设备。“新一代”堆叠和装袋系列设备，展现了高速和小尺寸的新技术。

最大程度的减小尺寸和特别关注在TCO方面发展，机器设计为女性护理产品提供各种包装解决方案。它还提供了最新的控制系统，最高的效率和支持设备简单操作及维护的模块化设计。单个装袋机最高速度可达每分钟125个，并可以生产折叠和铺展的女性卫生包装产品。其它方面还包括：带有一个或多个包装机和（或）纸箱的各种布局选择；用于独立包装配置的（交叉或同轴）车削模块；外置自动袋匣；质量控制的次品站；手动喂入附加产品的加载模块；相机基质量封闭检测系统；降噪可至80分贝以下。Focke & Co总部设在德国，在各大洲也有销售和服务分部。自1955年成立以来，该家族企业已向70多个国家提供了18000多台机器。

Focke包装机方案有限公司是Focke集团旗下第二大公司，负责采购、销售、工程、项目管理、装配和服务的全套业务。这些机器通过一流的组件和严格的质量管理设计可实现连续7天24小时高可靠性和耐用性操作。

(资料来源: "INDEX17")

Tatham的新型复合技术

Tatham是一家拥有完整生产线及多种应用的非织造布供应商。在INDEXTM17展览会中展示制备碳纤维玻璃和热塑性塑料复合材料新技术。专业的技术可使短碳纤维和回收利用的碳纤维加工成非织造垫。可以通过改变纤维取向以适应产品性能（各向同性，交叉铺网和平行铺网）。创新的针刺系统也配有批量卷绕和分切技术。

Tatham的机器包括纤维开松、混合、梳理、交叉铺网和针刺机。它还提供用于卷绕、分切、打孔、纤网清理、重量控制装置以及驱动和控制系统等所有辅助设备。

(资料来源: "INDEX17")

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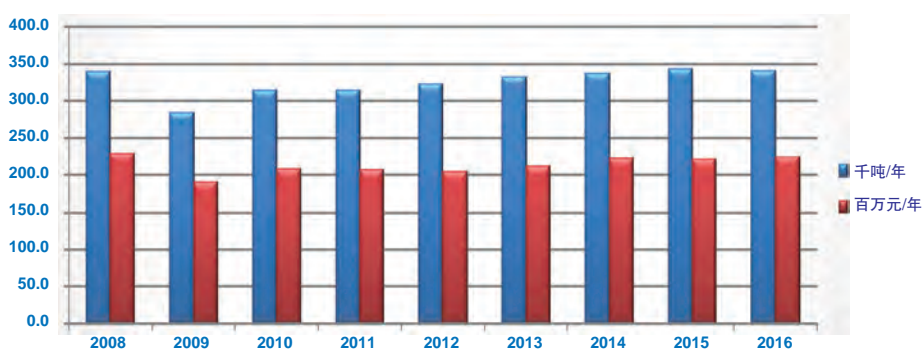
位于Negev沙漠的以色列新工厂的开设是公司巨额投资和扩建计划的一部分。去年在俄罗斯的生产基地上安装了第二条生产线，目前在北卡罗来纳州Mocksville的一个生产基地上计划安装第五条生产线。

(资料来源: "www.avgol.com")

2016年日本 非织造材料 产量

日本非织造材料产量

	2008	2009	2010	2011	2012	2013	2014	2015	2016
千吨	338.4	283.4	313.4	313.0	320.9	331.5	336.3	342.0	339.6
10亿日元	228.8	191.0	206.9	205.7	203.5	210.2	221.3	220.6	223.5
日元/公斤	676.0	674.0	660.2	657.2	634.2	634.1	658.0	645.0	658.1



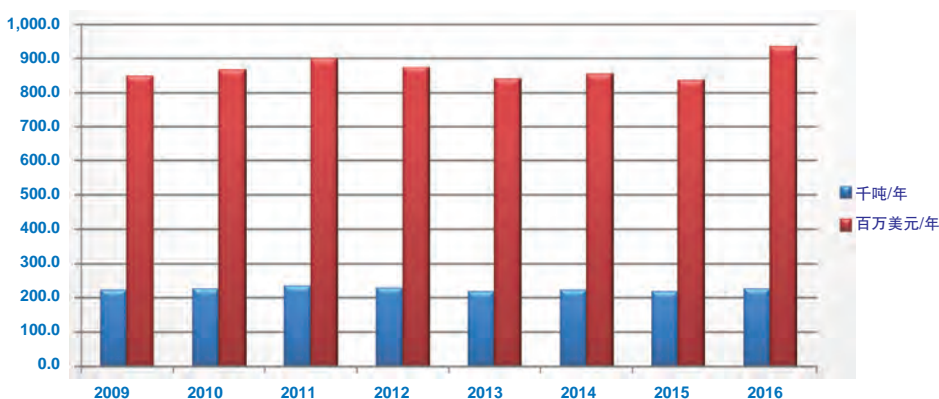
注：日本本土外的非织造材料企业（投资率：49%或更多）
2012年：165.1千吨；623亿元；2013年：196.3千吨；841亿日元
2014年：227.5千吨；1032亿日元；2015年：259千吨；1201亿日元

资料来源：ANFA

2016年韩国 非织造材料 产量

韩国非织造材料产量

	2009	2010	2011	2012	2013	2014	2015	2016
千吨	220.2	224.9	233.2	226.2	217.1	221.3	216.2	225.5
百万美元	847.0	865.0	897.8	872.0	837.1	853.1	833.2	932.3
美元/公斤	3.85	3.85	3.85	3.85	3.86	3.85	3.85	4.13



纳米纤维技术的进展及新应用

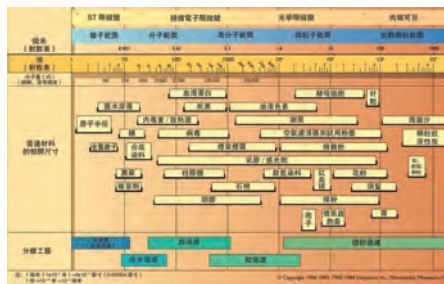
金正根

何为“静电纺丝”？

定义：是生产亚微米纤维高阻隔非织造布的工艺流程，聚合物溶液在电场的作用下，以毫米直径从喷嘴射出（原纤化聚合物）。

- 静电熔融喷射纺丝：0.001~0.00001mm
- 干法纺丝纤维：0.5~1.0mm

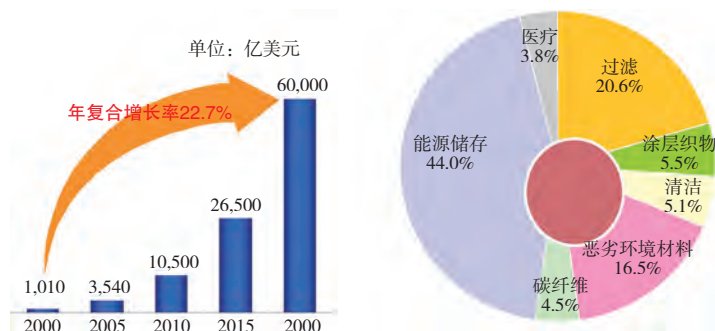
微米和纳米尺寸图谱



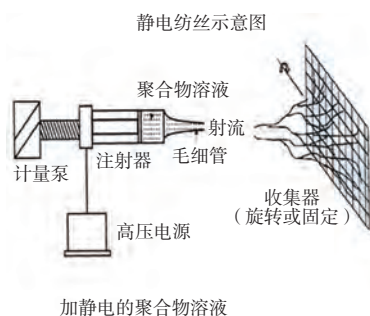
纳米工业的市场前景

- 将会得到广泛的应用并超越传统材料
- 从2009年起，增长率将达10%，2020年，市场规模将达300亿元
- 主要市场将是能量储存和过滤材料

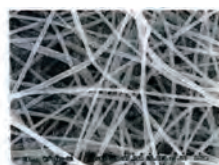
全球纳米纤维市场前景



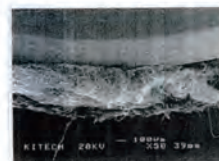
静电纺丝图例 静电纺丝概要



纳米纤维网的电子显微镜照片



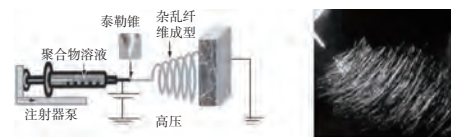
俯视图(5000倍)



横截面视图(50倍)

静电纺丝技术的起源

1934年Formhals, A注册了美国专利，1975 504



材料：溶解在溶液中的聚合物

条件：在喷嘴尖端和收集器之间施加电场

取向：聚合物溶液在电场斥力的作用下伸1000倍

纤维化：溶剂挥发得到纤维

产品：直接成网

可用于静电纺丝的聚合物及其溶液

- PAN（聚丙烯腈）；DMF-二甲基酰胺（疏水性）
- 纤维素；NMMO（N-甲基吗啉-N-氧化物）（用于轮胎帘子线）
- 聚酰亚胺；酚（耐高温）
- 聚酰胺和聚芳酰胺；硫酸（耐高温）
- 聚苯胺；硫酸（导电）
- 聚氨酯；DMF-二甲基酰胺（弹性体和粘合剂）
- PVA（聚乙烯醇）；水溶性
- PVC（聚氯乙烯），PVDF（聚偏氟乙烯）；DMF-二甲基酰胺
- 其他：天然聚合物，多肽类（蛋白质），胶原蛋白

聚合物及其溶剂

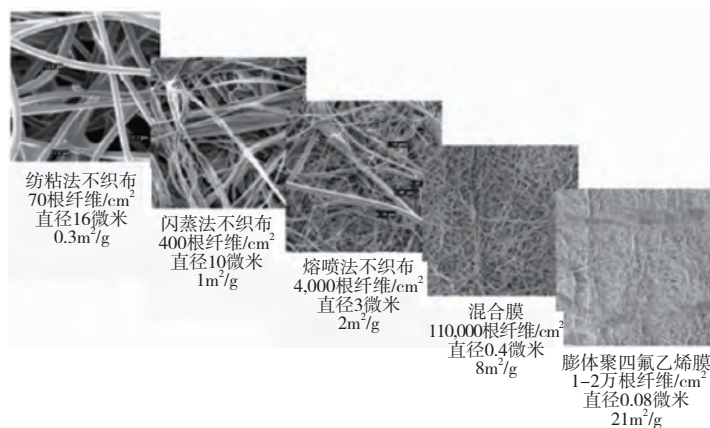
聚合物	溶剂
聚酰亚胺	酚
聚酰胺酸	间甲基苯酚
聚醚酰亚胺	二氯甲烷
尼龙6和尼龙66	甲酸
聚芳酰胺	硫酸
聚谷氨酸苄酯	二甲基甲酰胺
聚对苯二甲酰对苯二胺	硫酸
聚苯并咪唑	二甲基乙酰胺
聚醚酰亚胺	三氯甲烷
尼龙6聚酰亚胺共聚物	甲酸
聚丙烯腈	二甲基甲酰胺
聚酯	三氯乙酸/二甲基氯
聚丙烯	在真空中熔融
聚氯乙烯	四氢呋喃/二甲基甲酰胺
聚乙烯醇	水
聚苯乙烯	甲苯/二甲基甲酰胺
聚碳酸酯	二氯甲烷

可能：含有其他聚合物的碳纳米管
含有其他聚合物的石墨烯

产品的未来趋势



纳米及超细纤维的趋势



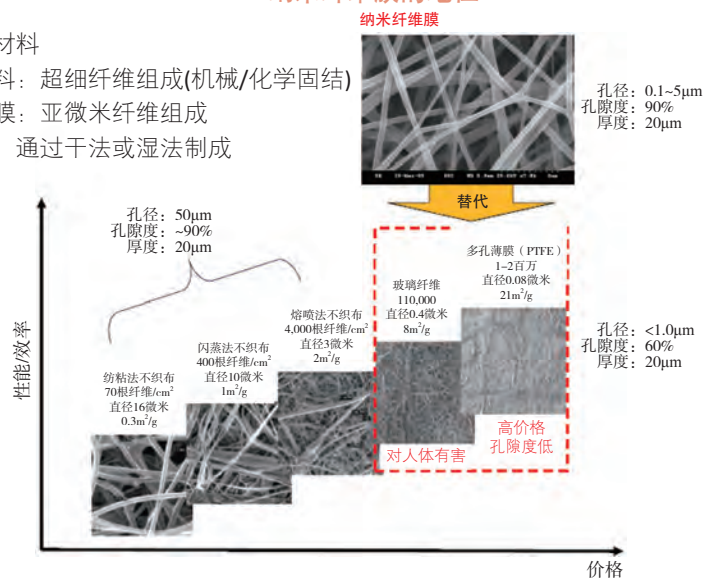
纳米纤维膜的地位

各种多孔材料

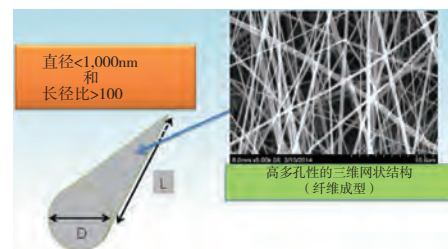
非织造材料: 超细纤维组成(机械/化学固结)

纳米纤维膜: 亚微米纤维组成

多孔薄膜: 通过干法或湿法制成

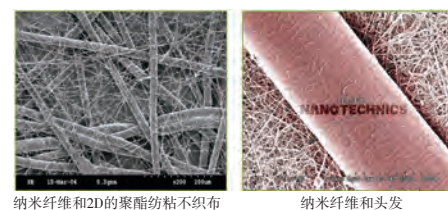


纳米纤维的特征

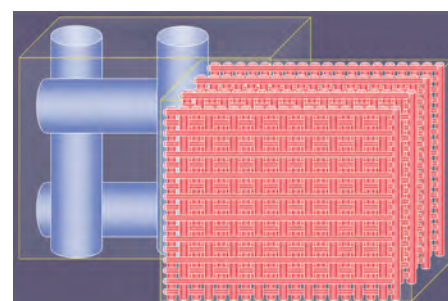


- * 高比表面积
- * 规律性小孔径
- * 高孔隙度
- * 可采用多种聚合物
- * 多种应用
- * 直接成网状产品

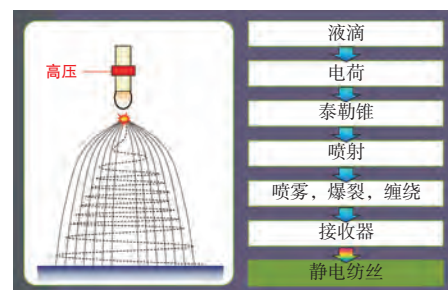
纳米纤维的尺寸



纳米纤维的表面积和孔径

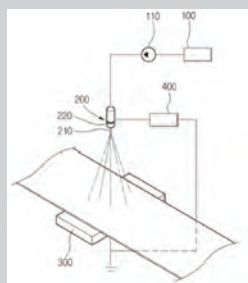


静电纺丝的基本原理

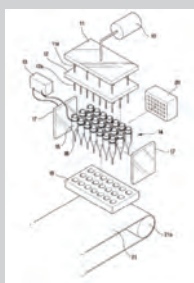


静电纺丝的方式 (专利)

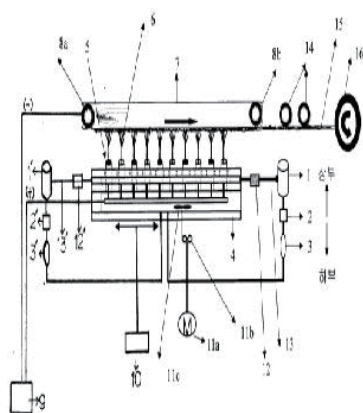
传统型静电纺丝



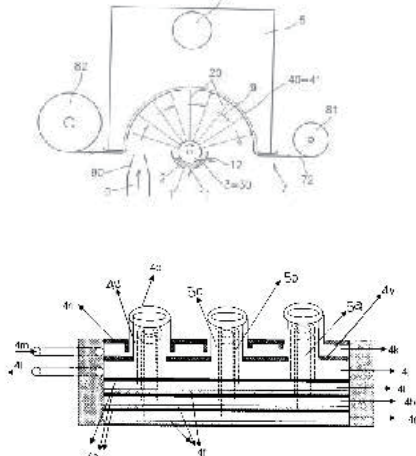
多头传统型静电纺丝(超过 80%)



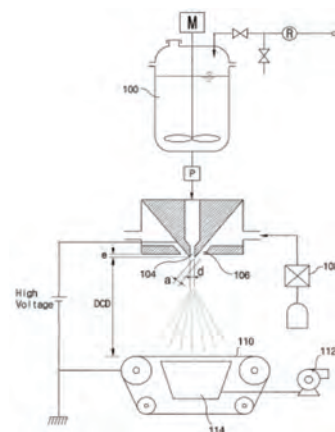
向上的传统型静电纺丝



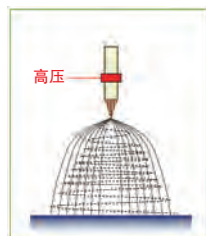
滚筒式传统型静电纺丝



改良后的静电喷射纺丝 (E公司, D公司-C公司)



静电纺丝和静电喷射纺丝



- F公司, A公司, T公司 等 -



- D公司和C公司 -

静电纺丝目前存在的问题

技术

- 纵、横向奈米尺寸的大偏差
- 无法保证

空气、液体过滤, 运动服装, 生物医学, 电池隔膜等。

产能

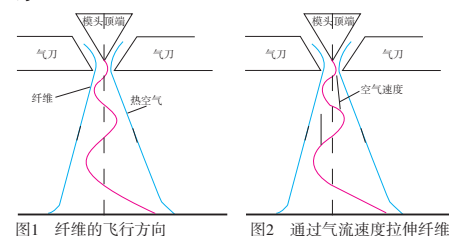
- 制约大规模生产能力
- 高昂的维护成本和固定成本

品质

- 不稳定的工艺控制和不均匀的纤维直径 (~1 μ m)
- 各种聚合物应用的限制

采用熔喷技术生产纳米纤维

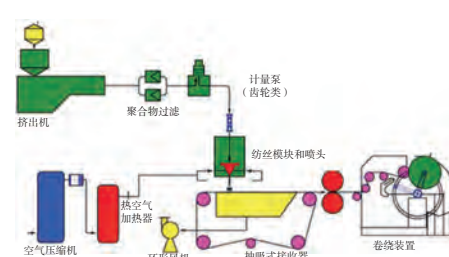
原理



熔喷系统

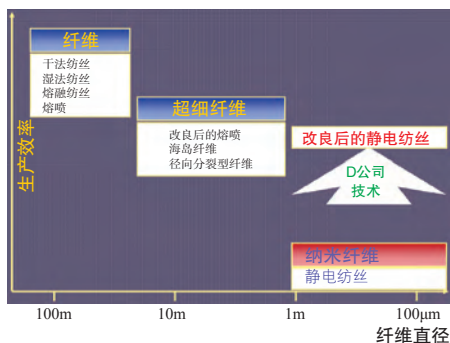


静电纺丝和熔喷的组合技术-制程

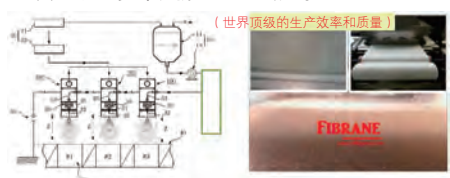


技术信息

静电喷射纺丝的特点



再次改良的气动静电纺丝技术



- 1) 专利设计的特制纺丝箱体
- 2) 高效率的放电配置
- 3) 精准的气动流体控制-层流
- 4) 纺丝后的传输恢复系统
- 5) 纺丝后的高速纤网输送系统

气动静电纺丝技术的独特性

技术

- 覆盖全球的专利
- 各种应用：空气、液体过滤、运动服装、生物医学、电池隔膜

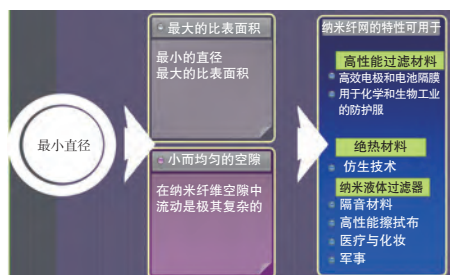
产能

- 空前的规模生产效率-已证实
- 与同类竞争技术相比增加500 ~ 1000%
- 低维护成本

品质

- 工艺可控，纤维直径均匀
- 可达90%空隙率，高比表面积（5 ~ 500m²/g）
- 各种聚合物应用

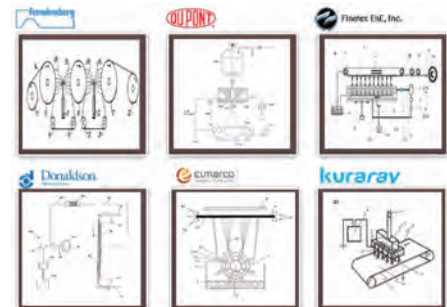
纳米纤网的功能与应用



各种应用



静电纺专利



全球纳米纤维技术的现状

- FT ENE 有限公司
 - 2005年成功投入商业化生产（聚氨酯底衬）
- Woo-Ri MNS
- Toptech.
- Amo Greentech.
- Dong-Wha Vitex
 - 2012年气动静电喷射纺成功
 - 以最大的产能规模化生产
 - 转让技术和专利
- Elmarco 有限公司
 - 提供设备(宽度达1.6m)
 - 纳米蜘蛛技术
- <http://www.elmarco.com>
- 其他
 - 唐纳森公司
 - H & V公司等...

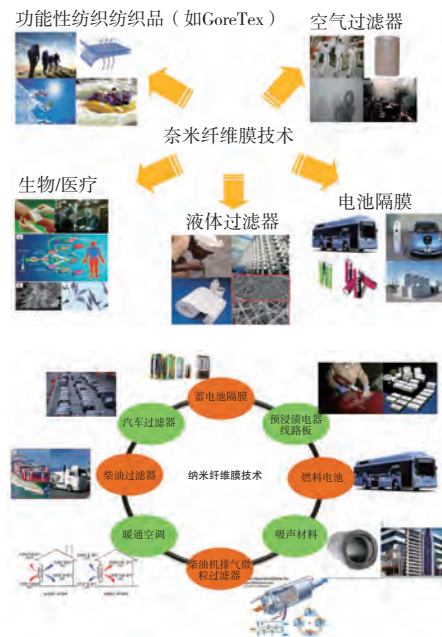
纳米纤维用于过滤

- 高效空气过滤器
- 真空吸尘器(高效级)
- 发动机进气空气滤清器和燃油滤清器
- 用于热交换（交换器）的过滤器
- 液体过滤器
- 用于集尘的袋式过滤器（热气体）
- 燃气轮机过滤器
- 电池隔膜

技术信息

- 汽车座舱过滤器
- 其他...

应用



纳米纤网的开发：工艺控制的基本参数和问题

项目	参数和问题
材料	· 选择合适的聚合物 · 粘度 · 导电率 · 表面张力
工艺	· 液体静压 · 电压 · 如何回收昂贵的溶剂 · 最大化产能
其他	· 溶液温度 · 湿度 · 气流和速度 · 如何使奈米纤维尺寸的偏差最小 · 如何降低生产成本

纳米材料:商业化现状

公司	品牌	应用	备注
F Co. (德国)	V.	中效过滤器 座舱过滤器	聚碳酸酯静电纺丝 (1000~2000nm) 始于1970年
D co (美国)	Ultra-web	中效过滤器 液体过滤器	尼龙, 始于1970年
H co (英国)	Nanos	HEPA filter 液体过滤器	聚丙烯 技术源于Technology from Nanofiber Tec.,公司(2000)
韩国		高性能纺织品、过滤器、能源存储、防水透气膜、医疗等	聚偏氟乙烯, 尼龙66, 聚乙烯醇, 聚丙烯腈等。全球技术最高、产能最大

各种工艺的产能比较

项目	气动静电纺丝系统	D公司	F公司	M公司
生产能力	200Kg/天 一条生产线 (尼龙)	5.0~7.0Kg/天 一条生产线 (试验生产规模)(尼龙)	8.0Kg/天 一条生产线 (聚氨酯)	10~12.0Kg/天 一条生产线 (聚氨酯)
每条线的孔数	400~600	—	9720	10,000
克/天/孔	1300	0.5	0.8	1.0
应用	空气、液体过滤器, 电池隔膜等	空气过滤器	过滤, 服装	口罩 能量存储, 服装
备注	· 再次改良后的气动静电喷射纺丝系统 · 规模化生产系统	· 传统型静电纺丝 · 低生产效率	· 传统型静电纺丝 · 已极多的喷嘴数量来弥补低产能的缺陷	· 传统型静电纺丝 · 过滤与分离

当前纳米产品的研究和开发

在超薄纺织品上直接涂气动静电纺丝纳米纤网



结论

- 1) 最娇小却最美丽
 - 2) 微小却强壮
 - 3) 轻却有趣
 - 4) 小差别带来大变化
- (资料来源: ANFA会议论文集, 本篇已节选)

(<<<上接33页)

所有这些生产线包含了DiloTemafa公司的高产混合系统; DiloSpinnbau公司可确保纤维束非常均匀喂入的Twinflow专有的梳理机喂入系统以及高产能的梳理机; DiloMachines公司具有保证最佳纤网性能和精准整齐纤网边缘的特殊气流导向高速交叉铺网机; DiloMachines公司Hyperpunch技术的多种针刺机。所有生产线都配备了CV1系统, 以达到最终产品的最佳均匀度。

前6条生产线已经投入生产, 接下来的2条生产线正在进行现场安装, 最后2条生产线预计于2017年上半年发货。

华峰超纤维材料股份有限公司成立于2002年, 是目前全球最大的海岛纤维人造革生产商之一。这些高品质人造皮革的主要应用在鞋、汽车、手套、包、沙发等。

迪罗集团于2003年给上海金山的华峰公司提供了第一条完整的针刺线, 截至2016年, 华峰总计订购了19条针刺生产线。



(资料来源: "www.dilo.de")

技术发展趋势

泰国未来展望

东南亚最成功的案例之一，现进展缓慢

在过去10年里，随着非织造布投资时机的成熟，泰国已经崛起，这主要由于日本制造商为服务于东南亚及中国不断增长的市场需求，和寻求更经济的海外生产基地所造成的。虽然这些投资最初的目标是增长的中国市场，但事实上东南亚市场很快被证明是同样重要的。

就泰国自身发展而言，它是东南亚第二大经济体和第二大出口顺差国，近几十年来，从以农业和渔业为主的国家发展成为一个中等收入的经济体，这主要依赖于电子、汽车、非织造布等行业的日益增长。而且，如果泰国的经济领导人能走自己的路，这种变革将持续下去，直到泰国成为一个高收入国家，并在一些技术成熟的行业中能够自给自足和可持续发展。

进军非织造布行业

在21世纪00年代末和21世纪10年代初，一些日本公司期望在泰国建立海外运营，以使他们的劳动力成本更低以及能够进军亚洲的新市场。Asahi Kasei于2012年在泰国安装产能为2万吨的纺熔线，在2015年其产量翻了一番，在2016年宣布建成第三条生产线，使公司的产能提升到6万吨。该公司的Eltas品牌的纺粘产品有广泛的用途，包括一次性纸尿裤等卫生用品，汽车和其他工业应用以及一般消费产品。

公司高管表示在泰国开展投资以来，即使价格竞争加剧，不仅公司在亚洲的业务剧增，而且即使在价格竞争加剧的情况下，由于对产品性能和质量的更高需求，产品更加高端。

同时，三井化学在泰国运营着二条生产线，生产30000吨纺熔非织造布以及透气膜。因为专注于在日本扩张，Mitsui在短期内可能不会在泰国增加投资。

日本的其他非织造布生产商包括JNC公司，在泰国的Rayong生产热风粘合非织造布用于卫生产品；CNC国际公司，一家泰国本地的制造商，年产约4万吨纺熔非织造布；Tapyrus，日本熔喷制造商，在2012年在泰国建立了运营工厂。

对泰国来说恰当时机

东南亚第二大经济体泰国（仅次于印度尼西亚）有非常低的失业率和正在增长的人均收入（目前人均收入不到6000美元）。当你想到曾经被称为暹罗的泰国，在20世纪90年代才成为工业化国家和主要出口国时，这些数据就格外令人印象深刻。

这一进步使世界银行将泰国描述为世界上伟大的成功案例之一，因为它在2011年成为上中等收入国家。“过去四十年来，泰国在社会和经济发展方面取得了举世瞩目的进步，在不到一代人的时间里从低收入国家成为高收入国家”。

此外，特别是在八十年代泰国持续强劲的增长及令人印象深刻的脱贫，促成了它的成功。但这一增长最近已经放缓至3.5%。

根据世界银行提供的数据，泰国的经济在1986年至1996年的繁荣时期，平均每年增长7.5%，而在1999至2005年亚洲危机之后，泰国的经济增长率为5%，创造了数百万的就业机会，帮助数百万人脱贫。多方位的福利成果令人印象深刻；越来越多的孩子正在接受更多的教育，几乎所有人都受到健康保险的覆盖，而其他形式的社会保障也扩展了。

在高速增长和产品价格上涨期间，过去30年，生活在贫困中的泰国人大量减少。从1986年的67%大幅下降到2014年的11%。然而，由于经济增长缓慢、农产品价格下降和持续干旱等因素造成的缺陷，使贫穷和不平等继续构成重大挑战。泰国的贫困主要出现在农村。在2013年，全国730万贫困人口中有80%以上生活在农村地区。此外，670万人生活在国家贫困线以上不超过20%，仍然容易陷入贫困。尽管过去30年来，不平等现象有所下降，但与东亚许多国家相比，泰国的分配仍然是不平等的。在泰国可以发现家庭收入和消费中存在显著和日益扩大的差距，在东北部、北部和南部仍然存在着大量的贫困人口。

泰国为近20年战略规划制定了长期的经济愿景，通过广泛改革实现发达国家地位。改革涉及经济稳定，人力资本，平等的经济机会，环境可持续性，竞争力和有效的政府机构。

技术发展趋势

包括实施多年大型公共基础设施项目，建立国家企业政策委员会，改善国有企业治理，并将专业金融机构的管理监督转移到泰国银行等一系列进展已经体现。展望未来，改革的持续步伐和对于将改革努力转化为预期的经济成果至关重要，教育和竞争以及公共基础设施管理和政府机构等领域的改革，对泰国从中到高收入都是至关重要的。世界银行支持改革议程。

在泰国，这些努力被称为泰国4.0，这是一个总体规划，旨在使国家摆脱中等收入陷阱——当中等收入国家跻身低工资的竞争力占主导地位的成熟行业和富国创新者主导的技术型产业之间。简而言之，泰国希望摆脱成为一个拥有大量廉价非技术劳工的国家而成为创新型价值经济体。尽管泰国的失业率非常低，但其实很多工人都是非技术性的农业工人。

使泰国成为未来几年的高收入国家，在很大程度上可以通过吸引高科技产业实现，这将使国家能够把重点放在更可持续的增长和实现更加包容的社会。然而，由于缺乏熟练的劳动力和其他基础设施的限制，有些人怀疑泰国是否能够实现这一目标。

在泰国显示出希望的一个高科技产业是汽车工业，这是东南亚最大的汽车产业，也是世界第十二大汽车产业，每年可以生产约二百万辆汽车，是2004年的两倍以上。泰国制造的大部分汽车是由日本和美国等外国生产商开发的，他们利用东盟自由贸易区，为其许多产品寻找市场。

卫生领域的持续投资

2亿美元的泰国纸尿裤市场主要由尤妮佳主导。这家日本卫生用品专家公司目前以其妈咪宝贝品牌占据54%的市场份额。尤妮佳还以其苏菲品牌主导了女性卫生产品市场，市场份额超过50%，尤妮佳正极力捍卫这一优势。2014年，公司在泰国Chachoengsao花费约3000万美元，投入10项卫生制造设备，开发更为尖端的产品。

尤妮佳努力保持其领导地位，许多其他卫生用品制造商（也包括亚洲的制造商）一直在关注泰国的潜力。随着个人收入的增

长、职场女性的增加、产品的创新以及在农村渗透率的提高，尿布的使用大幅增加，已成为泰国增长最快新兴零售市场之一。

与此同时，老龄化人口迅速增长，到目前为止，全国6800万居民中有15%在60岁以上，到2020年，这个百分比预计会上升到20%，成人失禁垫更大的接受程度正有助于推动该一次性用品市场增长。事实上，很多专家认为，在未来10年内，成人纸尿裤市场将比婴儿护理还要大。

成人纸尿裤的市场领导者DSG International不仅在努力改进产品线，推出了day pants和其他新产品，而且通过教育开展关于失禁护理管理的研讨会。

DSG还专注于改善其婴儿护理线。在2016年，该公司推出了Baby Love nanoower，具有超薄薄片专利的尿布，并配有裤子款式。泰国第二大的婴儿纸尿裤营销商DSG正在努力缩小自身与尤妮佳之间的差距。

在泰国，大王制纸去年也表示会在其泰国子公司Elleair International增加一个卫生防护生产设施，这家公司自2011年以来一直在生产婴儿尿布，而在去年也开始生产湿巾和擦拭布。在这条新生产线上的投资被估计为1050万美元，而大王希望从泰国年增长率为5%的女性卫生产品市场中获利。据报道，大王的其他努力，包括在泰国推出夜用和内衣风格的产品，以及在印度推出婴儿纸尿裤，是公司实现未来两到三年将其海外利润翻番的目标的一部分。（资料来源：“www.nonwovens-industry.com”）

（<<<上接33页）

该订单的供货包括了2台aXcess梳理机，1台P430交叉铺网机，1台JETlace Advantage水刺机以及1台neXdry Advantage烘干机。新的订单使得安德里茨再次确立了它在全球无纺布市场经证实的、完整系统知名供应商的地位。考虑到客户对产能和技术的各自需求，安德里茨全球范围提供量身定制的解决方案。（资料来源“INDEX17”）

产品集锦

Suominen为擦拭非织造布推出革命性设计系列图案

芬兰赫尔辛基，2017年3月22日，Suominen公司为婴儿护理以及家庭擦拭用非织造布推出了具有革命性设计师系列模式选择。设计师系列包括由专业设计师专门为Suominen设计的具有独特的清晰度的模式，使消费者在清洁中感受柔软度及功能性。

这些模式的商业化生产是通过Suominen在北美、欧洲以及南美洲的生产技术上的超过6000万欧元的投资实现的。

通过将设计师系列运用到擦拭材料上，Suominen同时满足了消费者和品牌在当代世界的需求。对于消费者来说，他们需要的是简单的选择，也就是说擦拭巾具有独特的模式，表明其舒适性或者清洁高效性，或者两者都有。对于品牌来讲，他们需要的是一个让人信服的理由去相信的擦拭巾基体，从而能够将他们的市场占有率达到最大值。这些正是设计师系列以及Suominen创造的新技术去传递的精髓，使Suominen的产品模式以及变形能力通过多种平台达到首屈一指。

Suominen的产品研发部经理Vish Mazumder说：“当我们团队开始设计师系列时，我们采用了之前其他非织造公司没有采用的一种方法。我们与专业的设计师进行合作，他们的解释真正向Suominen提出改进其生产工艺能力的挑战。”

他继续说：“对于像Suominen这样的非织造布公司，产品开发是另外一个史无前例的一步，我们向消费者询问什么样的模式他们感觉最柔软，清洗功能最高。根据多源数据整合的结果，与消费者的共鸣，最好的模式现在已经在设计师系列中呈现。”

产品部经理Jon Arendt说：“设计师系列是伟大工作的一个高峰。这是由很多人共同完成的，也就是我们的运营和研发团队。这个过程和消费者的见解聚集，同时结合客户的反馈，我们期待着可以为我们的客户传递有意义的业务结果的产品。我们相信，用这种工作方式，继续将Suominen的模范作用转换为一个市场驱动的产品领

导者。”

(资料来源：“www.Suominen.fi”)

Beaulieu Fibres International公司推出新产品并在INDEX 17展示卫生用非织造材料的创新

比利时，维尔斯贝克，2017年3月9日，Beaulieu Fibres International公司将在Index17展上推出一个开创性的新型纤维平台，并就其对创新和制造能力的持续投资而产生的未来重点卫生产品进行了详细的了解。

从2017年5月起，Meralux纤维将添加到Meraklon产品组合中。首先测试结果表明，使用新的Meralux纤维组合制成的非织造布具有更蓬松的体积。Meralux的覆盖范围是独一无二的，为非织造布提供非常封闭的表面，不含二氧化钛等添加剂。凭借独特的表面形貌，柔软度将被用于选择材料的依据。配备所有这些功能，Meralux可以减少基重，却不会降低性能。

随着其产品进一步多样化，Beaulieu Fibres International公司将于2017年夏天生产卫生用途的短切纤维。可以将常规PP和双组份纤维切成长度在3—24mm之间。

2017年为了增加新产品，随着新型聚酯（PET）芯层双组份纤维的推出，Meraklon产品组合将进一步扩大。他们将在位于意大利特尔尼的工厂投入Meraklon新的最先进的长线。目前正在投资3000万欧元，以扩大其生产能力，并计划在今年开始运作。

Beaulieu Fibres International公司的全球销售总监Petra Bohle-Stricker评论说：

“Beaulieu Fibres International正在继续加强其作为全球聚烯烃纤维供应商的地位。投资纤维生产是确保我们应对未来挑战和客户需求的重要动力。自从Meraklon收购以来的四年中，Beaulieu Fibres International已经成功具有一个领先的市场参与者所需的水平。我们扩大了投资，以更好地满足未来市场需求，并不断创新，以确保我们为纤维行业做出更大贡献。”

(资料来源：“Beaulieu International Group”)

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