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Asia's Only Regional Bilingual Magazine for the Nonwovens Industry

NonwovensAsia

亚洲非织造材料工业　ノンウオーブンス·アジア　부직포 아시아

FEILONG 飛龍

2016年新款产品
Newest product

高速梳理机
High-speed carding machine

机器宽幅：2.5M、3.0M、3.8M
Machine width: 2.5M, 3.0M, 3.8M
出网速度：可达120M/min
Output speed: up to 120M/min

适用范围：针刺、水刺、热风无纺布
Application: Needle Punching, spunlace, air through fabric

120M新型热风无纺布生产线

热风定型机
Hot air setting machine

机器宽幅：2.5M、3.2M
Machine width: 2.5M, 3.2M
有效烘区：3M×n单元
Drying zone: 3M×n unit
生产速度：可达120M/min
Production speed: up to 120M/min

适用范围：热风无纺布、无胶棉、过滤棉、热熔毡
Application: Air through fabric, non adhesive mattress, filter media, thermal bonding fabric

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非织造布机械设备 NON.WEAYEN CLOTH MECHANICAL EQUIPMENT

垂直式混开棉机组
Vertical mixing opener

ASBG003气压自动棉箱
ASBG003 Air auto hopper

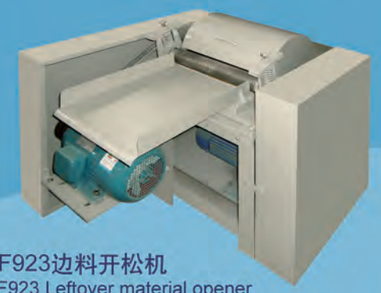
ASBG091梳理机
ASBG091 Carding machine

ASBG215系列梳理机
ASBG215 Carding machine

ASBG401高速铺网机
ASBG401 High-speed cross lapper

ASBG939大仓混棉箱
ASBG939 Large bin hopper

直列式混开棉机组
In-line mixing opener



WF923边料开松机
WF923 Leftover material opener

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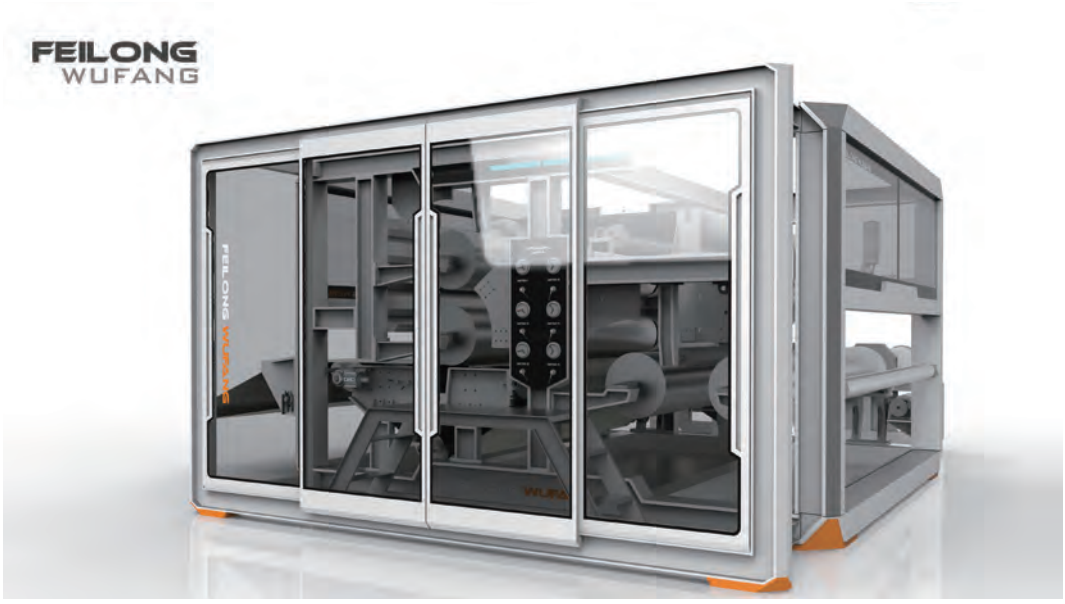

高效水刺机组
High-efficient spunlace units

机器宽幅：2.5M、3.5M
Machine width: 2.5M, 3.5M
生产速度：可达150M/min
Production speed: up to 150M/min

适用范围：各种水刺无纺布
Application: all kinds of spunlace nonwoven fabric

高速针刺机
High-speed needle loom

机器宽幅：2.5-9M
Machine width: 2.5-9M
针刺结构：单针区、双针区、四针区
Needle structure: single board, double boards, four boards

针刺频率：1200n/min、1600n/min
Needling frequency: 1200n/min, 1600n/min

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LYG Boulder Industrial Co.,Ltd

连云港柏德实业有限公司位于中国江苏省连云港市东海经济开发区，创建于2007年11月，主要从事医用防护材料生产和销售。2013年4月投产的SMMS纺熔复合无纺布生产线，汇集国内外高新技术，并延揽行业内精英人才，根据医用无纺布的需求特点进行专门设计，拥有多项独特技术。可以生产SS，SMS，SMMS等各种规格，各种颜色无纺布产品。并可以进行亲水、抗静电、抗酒精、抗油、抗血等处理。产品纤维细度好，手感柔软，熔喷层具有良好的阻隔性能，适用于医疗及卫生等领域，如：隔离衣、手术衣、手术铺单、纸尿裤、成人失禁品等。

LYG Boulder Industrial Co. Ltd is located in DongHai Economic Development Zone, LianYungang, JiangSu Province, established on Nov.2007, mainly engaged in producing and selling medical protective and hygiene materials. We designed SMMS line for medical use, having unique technology. Our line can produce SS, SMS, SMMS, etc. with hydrophilic, antistatic, alcohol repellent and other treatment. We have owned fine fiber technology with excellent barrier property and better hand feel, mainly used for protective apparels such as isolation gowns, surgical gowns, surgical drapes, also can be used for hygiene field as well.

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Business News

A.Celli Nonwovens supplies spooling line to major client

A.Celli Nonwovens supplies spooling line to major client

Line expected to start up in July in Europe

A major international company with distribution facilities in four continents and a production plant in Europe has confirmed the purchase of an A.Celli Nonwovens spooling machine with 10 heads with automatic master roll loading and discharge of finished rolls. The line is expected to be up and running in July 2016.

The A.Celli Nonwovens machinery supplied to this important Group can reach high efficiency levels with reel loading and discharge times reduced to a minimum. The order is part of a more complete supply: a new line for the production of ATB (Air Through Bonded) nonwoven products equipped with winder with in-line cutting device that allows the customer to produce master rolls for spooling, a rewinder and integrated packaging system. A completely automated plant. A true turnkey winding system.

Thanks to the effective integration of its machinery that, starting from the web coming off the line, can produce traditional or spooled reels, the Italian company is well poised to meet the needs of every customer, offering a complete, highly specialized service.
(Source from: "www.nonwovens-industry.com")

Low & Bonar opens Chinese plant

New facility will produce Colback nonwovens to the flooring, building and automotive markets in Asia

Low & Bonar announced the opening of a £26 million ($32.7 million) production facility that will manufacture Colback, its proprietary nonwoven premium brand fabric, in Changzhou City in the Yangtze River Delta.

The new site will supply various applications to the flooring markets, building and automotive industries in both domestic and Asian regional markets. In addition, as demand escalates for cleaner air and water, the plant will supply a range of technical and textile solutions for air and water filtration usage.

Brett Simpson, CEO, comments, "It is our strategy to have production close to our core markets in order to secure short lead-times and provide world class service to our customers. China – and the rest of Asia Pacific – is a future core market for Low and Bonar Group. Having full control of the production process is essential to deliver products of a consistent high quality and performance.

"With our local and global customer focused teams and strong service network, we can optimize our processes in production, logistics and administration which brings benefits to our customers. This will also help to decrease our environmental impact by reducing the need to transport products from Europe or the USA to be sold in Asia."

With majority of sales likely to come from Chinese domestic markets and the rest from APAC, the plant is also expected to meet global capacity requirements for Colback for the next five years. Covering an area of 29,600 sq. meters, the facility is based in Changzhou National Hi-Tech District, China's economic development area with a history in textiles.

In the flooring industry, Colback is widely used as a primary backing in carpet tiles, high-grade patterned wall to wall carpeting and walk-off mats. The dimensional and thermal stability of Colback prevents carpets from bowing and skewing during processing and makes installation, especially pattern repeat, easier.

Alex Xu, country manager, China, says: "Colback is unique in the world of nonwovens in that it uses a two-step manufacturing process that is not easy to replicate; this gives us a great advantage to enable our customers to make unique products and helps us to gain market share. Our team located in Shanghai will provide sales and technical support to our customers in China and international customers moving into the Asia Pacific region."
(Source from: "www.nonwovens-industry.com")

New nonwovens producer establishes in Indiana

Carver Non-Woven will be operational

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in July, serving the recreational vehicle, automotive and building products industries

Carver Non-Woven Technologies announced the construction of a new manufacturing plant that will be located in Freemont, IN. The new building is being repurposed from a vacant facility located at 706 E. Depot St. Carver's facility will begin production beginning in July of 2016, focusing on products manufactured with multiple fiber types including e-glass, carbon fiber, bast fiber, and synthetic fibers of all types.

The production facility is designed with state-of-the-art technologies which include the latest developments in fiber opening, blending, carding, cross lapping, web drafting and the ultimate in needle loom design, "Hyper Punch" technology.

Carver's focused design and technology has been developed with the intent to significantly raise the bar on product quality including tight tolerances on fiber blending, opening, product weight distribution and line versatility. These are key metrics in meeting performance requirements for lightweight solutions for automotive, recreational vehicle as well as building construction and office systems.

Specific capabilities will range from single web formulations and will include new options that combine two different formulations into one single matrix. Dual web configuration allows Carver to formulate products by using a multitude of different material types to meet exact application requirements while maintaining cost balance.

In addition to dual web options, Carver also meets the latest quality demands for the production of natural fiber composites. Specifically, Carver's line has put to rest the problems of fog related issues relating to natural fiber when introduced to automotive applications. Formulation testing has consistently achieved pass ratings above 90.

Carver technology allows for manufacturing of formulations ranging from 300 gsm up to 2400 gsm in a multitude of blends and fiber types. Ratios range from 80%/20% to 20%/80% and testing has shown no loss of quality or performance output.

Additionally, Carver has chosen to completely automate its line from debaling through finished packaging. Combined, all design and process systems provide for complete control, consistency and quality of finished goods.
(Source from: "www.nonwovens-industry.com")

Toray advances in Asia

With four lines in China and two in Indonesia, this Korean company is intent on being Asia's largest nonwovens manufacturer

Well on its way to becoming Asia's largest producer of nonwoven fabrics, Korea's Toray Advanced Materials, once a joint venture between Toray Industries and Saehan, is working hard to meet the needs of the Asian consumer. While investment in Korea has slowed, the company has been adding new lines in China and Indonesia since 2006, making it one of Asia's largest suppliers of spunbond nonwovens.

Exports manager Evan Lee says the decision to invest in China and Indonesia was the result of discussions with its key customers about where to find the best business opportunities.

"After talking to our customers, we made a decision to invest in the spunbond business and expand our business to China and Indonesia and became a major supplier in Asian nonwovens business," he explains. "Although many nonwovens makers experience tough periods due to over-supply issues, severe competition and pressure of price-downs, we are always finding a new chance to break through."

This market knowledge—and a little bit of confidence—is what influenced Toray to be so aggressive in expansion, a strategy that is paying off. In 2014, the company's sales increased 18% to $342 million, thanks to better-than-average growth out of its operations in China and Indonesia. Meanwhile, sales out of Korea grew only in the single digits.

Toray established the Chinese operations in Nantong in 2006 and added its second and

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third lines in 2010 and 2012. The fourth line, finished in 2015, brought the site's total capacity to 77,000 tons reportedly making it China's largest nonwovens operation.

"China is one of the most quickly developing hygiene markets in whole world," Lee says. "This trend influenced spunbond makers to expand capacity and newcomers enter, creating an oversupply situation in the spunbond market, but on the bright side the change of one-child policy and increasing premium market will give us new opportunity to expand our Chinese business."

Toray predicts that the market for disposable diapers will grow from 14 billion pieces in 2012 to 38 billion pieces in 2020 due to improvements in people's lifestyles. This trend will influence major hygiene producers to expand their existing facilities and break ground on new facilities in new regions.

"We've been making solid business partnerships with global and local diaper makers for a long time," Lee says. "Our target is to construct a supply chain to meet the needs of our customers throughout Asia," Lee adds. "When we consider expanding a business, we listen to a customer's business plan and try to find a way to grow together. We have various business channels for not only global makers but also local customers, so every customer could give our business a chance."

Elsewhere in Asia, Toray as already announced plans to add a second line to its Indonesian site, just 18 months after the site began operation in June 2013. This new line will double capacity at the site in September 2016.

"Indonesia is the most populous country among Southeast Asian nations and has a strong growing force especially in the hygiene market. Besides, here is good regional position to expand our business to South Asia. Therefore we trust that this decision was a very successful part of our Asian expansion strategy."

In the past, Toray has hinted that expansion into another Asian country will be the next step in its growth strategy but executives have remained coy on the details saying only that they will advance the business continuously as warranted by market needs and customer growth does.

"China and Indonesia are still very attractive markets for us, so we are willing to focus more on this market now. But we're always considering new chances in another region," Lee says.
(Source from: "www.nonwovens-industry.com")

Fitesa announces new state-of-the-art spunmelt line for its Simpsonville, SC facility

Following our release of information in August 2015 regarding capacity expansions in Europe, the US, and South America, Fitesa confirms that the new US capacity will be installed at our plant site in Simpsonville, SC. The state-of-the-art spunmelt line will have an annual nameplate capacity of 24,000 MT and will begin commercial operation in the second half of 2017.

About Fitesa

Fitesa is a leader in the design and manufacture of nonwoven fabric solutions for the global hygiene market. Enjoying global reach from its manufacturing sites across the globe, Fitesa employs a wide range of nonwoven production technologies to meet customer requirements for service, quality, and flexibility. Fitesa specializes in the development of innovative products, both independently and in collaboration with customers.
(Source from: "www.inda.org")

Freudenberg promotes Evolon in lightweight wipes

Weights as low as 30 gsm make substrate a great fit in demanding application

Freudenberg Performance Materials is strengthening Evolon's position in the lightweight industrial wipes market.

Originally designed as a durable fabric with outstanding properties, Evolon has been used for more than a decade as heavyweight high-tech cleaning cloths withstanding hundreds of wash cycles at constant performance. Recent developments have allowed Freudenberg to

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Freudenberg promotes Evolon in lightweight wipes

make Evolon in weights as low as 30 gsm-1.5 to two times lighter than traditional lightweight wipes. Additionally, Evolon offers design and patterning flexibility including: flat, mesh or the new 3D structures, to fulfill the need for differentiation expressed by the customers.

"The pattern was originally a more stringent subject in consumer markets, but we are more and more required by the industrial market to provide unique-looking products with superior cleaning performance. Evolon is fit for this too." says Jean-François Kerhault, business segment manager Evolon.

Freudenberg would promote this use for Evolon at IDEA 16 in Boston, MA, where the three-dimensional version of the product is also nominated for an achievement award.

Many customers pre-impregnate Evolon substrates, to provide the task-specific light wet wipes required by a more and more segmented industrial market. These include highly demanding applications like the automotives and aerospace industries. Thanks to the microfilament structure, the impregnation remains stable over the product lifetime to ensure constant liquid release. The composition of Evolon microfilament textile is compatible with a multitude of pre-impregnation cleaning lotions, solvents and IPA. "Evolon is also resistant to peroxide-based disinfectant, unlike some other competitive materials. This brings a significant advantage to our customers, by allowing them to use a wider variety of cleaning agents." adds Kerhault.
(Source from: "www.nonwovens-industry.com")

Hospeco expands foodservice towel line

SaniWorks EPS Towels consistently release cleaning solution to the wiping surface to better ensure proper surface sanitizing

Hospeco, a manufacturer of facility cleaning and personal protection products in North America, announces their expanded SaniWorks Foodservice Towel line with the addition of the new EPS (Enhanced Performance for Sanitizing) towel. SaniWorks EPS Towels are durable, extended-use towels constructed to be more compatible with quat and chlorine sanitizers.

Unlike many cloth towels and disposable wipes, Hospeco's EPS towels consistently release the effective sanitizer to the wiping surface to better ensure proper surface sanitizing and to aid in the prevention of cross contamination. The EPS towels are engineered to inhibit the active ingredient in the sanitizer from binding with the towel, so the cleaning solution in the bucket gets to the towel and releases to the surface in the proper amount.

The SaniWorks line now consists of four core categories of foodservice towels varying in performance, durability, duration of use, and size to provide the right towel to meet a facility's specific applications, to work with the user's designated cleaning/sanitizing protocols, and to meet the facility's desired cost-in-use.

In addition to the new EPS Towels, the four categories also include Deluxe Antimicrobial Towels (the antimicrobial treatment inhibits the growth of odor-causing bacteria in the towel; designed to be reusable, but priced to be disposable); Bar Mop Replacement Towels (more sanitary and more durable than traditional bar mops or linen towels, these items are designed to be rewashed and reused, even laundered, for extended periods of time); and Choice Counter Towels (an ideal option for short-term use such as basic counter wiping or in concessions).

Color-coding is essential to improving all efforts in the prevention of cross contamination, and Hospeco's SaniWorks line allows for easy color-coding. Facilities can assign color codes to surface cleaning as part of their Hazard Analysis Critical Control Program (HACCP).

Most SaniWorks Foodservice Towels are now packed in a new CounterCase designed to help maximize storage space. Hospeco's Counter Cases are lower-profile, single- or dual-ended dispenser cases that allow the towels to be dispensed from the ends of the case, requiring less horizontal shelf space and providing ease-of-sight inventory control and protection for the towels.
(Source from: "www.nonwovens-industry.com")

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FTA honors ProAmpac with Seven Flexography Awards

CINCINNATI, Ohio (March, 2016) – ProAmpac, a leading global flexible packaging company, announced recognition from the Flexographic Technical Association (FTA) for seven honors in the 2016 Excellence in Flexography Awards Competition.

Winners for ProAmpac's Prolamina and legacy cei (now part of Prolamina) brands were gold winners for GP Spectrum Standard 92 Multipurpose Paper Wrapper; Norpac Natural Choice Multi-Purpose Paper Wrapper; Domtar Earth Choice 30 Recycled Office Paper Wrapper; and a bronze win for W.B. Mason Flagship 3Hole Wrapper. ProAmpac's Ampac brand won silver medals for Levi's A Great Pair of Jeans paper shopping bag; and Levi's Holiday paper shopping bag; and lastly, a bronze award for Aeropostale's Coming Home Holiday Dogsled paper shopping bag.

Greg Tucker, CEO of ProAmpac states, "We are extremely proud of our expansive high definition flexographic printing capabilities, and our extensive graphics department. These seven awards underscore our commitment to quality printing and innovation."

According to the FTA this year's competitors "Saw fierce competition and some of the best print jobs in the competition's 56-year history. Medal recipients delivered vividly sharp images, tight registration, consistent repeats, proof to print matching, attention to detail and stellar overall execution."

In addition to ProAmpac's award winning flexographic capabilities, they offer rotogravure printing and a complete graphics department to help ensure the best process for each unique product to highlight their customers' brands.

About ProAmpac

ProAmpac is steadfast in their unwavering commitment to provide creative packaging solutions, industry-leading customer service and award-winning innovation to a diverse global marketplace. It is a diversified global packaging company with over 2,500 employees and 18 manufacturing centers in North America, Europe and Asia. For more information, visit our website at: www.proampac.com.
Source from: "www.inda.org")

A time of change - Sandler reports successful year 2015

German nonwovens producer Sandler AG from Schwarzenbach an der Saale, Bavaria, reports a successful year 2015, having generated sales of 288 million Euros. The Sandler team grew to 710 staff members. With the expansion of the Schwarzenbach location and the contract conclusion for a new nonwovens production site in the USA, 2015 marked the start of a new chapter in Sandler's company history.

For Sandler, 2015 was shaped by further development and the turning over of a new leaf. With its wide product range the nonwovens manufacturer was able to achieve high levels of capacity utilisation. Nonwoven innovations, the expansion of the Schwarzenbach plant and the establishment of a manufacturing location in the US will be the engine of further growth in the years to come.

Sustainability combines with highest performance—those were the watchwords with regard to nonwovens for interior acoustics. Nonwovens are increasingly applied in building and technical insulation as well as noise reduction in industrial buildings, in the automotive industry and for office design. Their open-pore structure makes them excellent sound insulators, providing a sense of quiet, both at home and amidst the bustle of activity in the office.

In 2015, Sandler developed its range of nonwovens for these applications further in cooperation with its partners. Among others, the company introduced self-supporting nonwovens for office acoustics, utilised as partition walls or in acoustic furniture.

The filtration industry is a vital market for Sandler and is set to continue gaining importance further down the road. Filter media are becoming increasingly essential for our quality of life, particularly in congested urban areas where air pollution is rapidly becoming a problem. They provide clean air to breathe in air conditioning systems for

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residential homes and industrial buildings or as cabin air filters in vehicles. Sandler supplies durable, efficient filtration nonwovens for these applications. In 2015, however, the keyword Indoor Air Quality did not only address air quality in public places: A new norm on the energy efficiency of filter media is shaping the industry. Sandler offers synthetic filter media which already meet these new requirements. They contribute to lowering the energy consumption during the operation of the filter plant.

Overcoming the limits of textile engineering–combined with other materials, nonwovens can achieve this goal. In 2015, Sandler introduced composite materials made of nonwovens and fibre reinforced plastic for the automotive industry. The composites insulate engine and driving noise as well as heat, they are robust, but lightweight at the same time. Applied in the underbody, the headliner or even body parts, they support lightweight construction and thus help reduce fuel.

The company's ongoing development is also apparent at the Schwarzenbach location: A new 17 million Euro production building is taking shape and will house a new production line as of mid-year 2016 to expand the production capacity for hygiene nonwovens and wipes substrates. In total, Sandler will invest 43 million Euro in this new production side.

The Sandler staff is also growing steadily and since growth requires space, the construction of a new administration building also commenced in 2015. Sandler nonwovens will be applied in the interior design and they will help create a quiet, pleasant working environment. Sandler staff will relocate to the new building during the first half of 2016.

Some members of the Sandler team will also relocate in 2016, but on an entirely different scale, taking up a challenge unparalleled in the company's history: In summer, they will put the Sandler Nonwoven Corporation in Perry, Georgia, USA, into operation together with new US colleagues. Quite literally, this step represents a departure for new horizons, which allows Sandler to make its nonwovens available "made in USA"–closer to American customers.

All in all, 2016 is set to hold a number of challenges for the family-operated company. However, the 710-member "Sandler family" is ready to live up to them—owing to motivated employees who identify with the company and bring their experience, expertise and new ideas to each and every task. Continuing professional development is a factor of success, which is why Sandler constantly invests in modern training facilities and specific training schemes.

In such a large team, forming the basis for the company's success and now working to further the establishment of the US-location, leadership is a vital subject. Sandler emphasizes each individual's responsibility for their respective tasks and above all banks on open communication and exchange of ideas-between management and staff, between the company's different departments, and soon also between the German and the US plant. This philosophy is passed on to new generations of Sandler employees through a development programme for junior management. It is but one of the instruments Sandler puts in place to set a course for the future of its team as well.
(Source from: "www.inda.org")

The best for baby

Diaper makers hone in on innovation, making diapers thinner, softer and more comfortable than ever before

In 2015, consumers continued to seek thinner, softer and leak-free diapers for their babies, and manufacturers have been up to the task. Thanks to innovations from makers of nonwovens, diaper manufacturers have been able to reduce the overall weight of the product by using thinner diaper components and have been able to create a soft to the touch feel with silkier topsheets and backsheets. Moreover, the better use of elastics has allowed for a snugger fit to prevent leaks, while new core technology has allowed for better liquid distribution.

The last year has shown that these innovations are key when it comes to growth, even in the highly saturated markets of North America and Europe. In fact, after sluggish sales in North America in the fourth quarter of 2014, Huggies maker Kimberly-Clark announced it would refocus its strategy to better compete with its top rival Procter & Gamble, the maker of Pampers and Luvs. A

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Pampers continues to be a leading baby diaper brand globally.

year ago, K-C chairman and CEO Thomas Falk said the company would be "making investments in innovation, marketing and relative value to key competition" to improve the company's performance in 2015.

Fast-forward to the third quarter of 2015, and K-C reported an increase in Huggies diaper volumes—rising in the low double-digits—compared to a low double-digit decline in 2014. "Our second quarter re-launch of new Snug & Dry mainline diapers is on track, and I'm encouraged that our Huggies volumes are improving," Falk said during the company's third quarter conference call in October.

K-C also saw success in emerging markets. In Eastern Europe, organic sales for baby diapers were up around 45%; in China, organic sales for baby diapers were up 15%, with volume growth remaining strong; and in Brazil, organic sales for diapers rose 5% despite the challenging economic environment.

Last year P&G also focused its attention towards innovation in the U.S. with upgrades to its Pampers Cruisers and Swaddlers lines. Both were enhanced with Extra Absorb Channels that are meant to help babies stay drier. The upgraded diapers have three absorbent channels in the core of the diaper that distribute wetness evenly and help prevent diaper sag. While the design of Pampers Cruisers has changed, the materials remained the same. On the other hand, diapers in the Swaddlers line now feature a softer outer cover.

"The Extra Absorb Channels within new Pampers Cruisers solve one of the most-long-standing problems that we've seen in our research with babies and their caregivers through many years: wet diaper sag," says Heather Valento, associate director-communications, P&G Baby & Feminine Care. "Ordinary diapers have an unstructured core; when wetness accumulates in the middle, it weighs the diaper down and causes it to bulk, which leads to sagging. Distributing the absorbent material evenly within channels is a breakthrough in how diapers are made, how they work to distribute wetness evenly, and how they fit to reduce sag."

During P&G's first quarter fiscal 2016 conference call in October, CFO Jon Moeller said strong innovation, consumer communication, trial programs and a strong online presence had led to solid growth in P&G's Baby Care segment in the U.S. P&G's diaper value share was up over 1.5 points in fiscal year 2015, and up a half of a point in the first quarter fiscal 2016. The company expects the latest premium Pampers upgrades to help it sustain this strong momentum.

In other markets, Moeller noted that Baby Care results were weaker outside the U.S. To tackle this, P&G "accelerated premium innovations" for its taped and pull-on diapers, to better compete at the top end of the market, he said. "We're strengthening our selling resources and programs for baby stores, and we're improving our point-of-market entry programs to deliver higher awareness and trial of Pampers among new moms."

Burlington, VT-based eco-conscious brand Seventh Generation also made some upgrades to its baby diapers. Modifications were made to the inside of its Free & Clear diapers where it touches a baby's skin. According to Daron Byerly, brand manager, Innovation at Seventh Generation, the company has improved how the diaper absorbs and locks moisture away from the skin, so the baby stays drier. Seventh Generation has also upped the absorbent capacity of Free & Clear diapers. "We combined premium absorbency with a snug, comfy fit around the legs and adjustable, re-sealable tabs for a flexible but secure diaper," he says.

Like other diapers on store shelves marketing softer materials, Seventh Generation launched its own line of softer diapers in 2014. New Touch of Cloth diapers feature an unbleached cotton backsheet.

"The unbleached cotton has an incredibly soft touch," Byerly says. "These are the first and only diapers made with cotton fibers that are as natural and unprocessed as you would find in the field - cleaned without chemical processes."

While backsheets are usually made with

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petrochemical plastics, he says the Touch of Cloth line's backsheet is made with all plant-derived materials.

In Europe, Swedish hygiene and forest products company SCA has made advances in the premium diaper category. In October, the company launched Libero Touch, featuring a new, very soft and ductile material that provides a better fit and movement around waist, hips and legs, preventing leakage and keeping the baby dry for a long period of time. SCA says the diaper's topsheet is exceptionally soft, and the outside is composed of a material with a cotton feel that also breathes.

"During the first years of its life, a baby spends almost 24 hours a day in diapers, which means comfort and material quality are absolutely critical," says Maria Holmberg, global technical innovation manager at Libero's innovation center. "All the materials and features have been carefully selected to provide total comfort and care for the baby."

Diaper industry consultant Pricie Hanna, managing partner of Price Hanna Consultants, says this trend of über softness for premium diapers has gone to a higher level in the last one to two years. "I think there is a fair amount of evidence that consumers are really recognizing aesthetics - softness, cushioning, etc.," she says.

Action in Private Label

In early November,Ontex, a Belgian maker of branded and retailer brand hygienic disposable products, agreed to acquire 100% of the shares of Grupo P.I. Mabe (also known as Mabesa), a leading Mexican maker of disposable hygiene products. Based in Puebla, Mabesa's annual sales are about €400 million ($434 million). Of these, about 60% are conducted in Mexico, the fifth largest personal care market in the world. The remainder is exported, mainly to the Americas region, where Mabesa has a strong foothold in the southeast U.S. market. Ontex's entry into these new markets, as well as the establishment of a new Americas division will extend the group's growth moving forward, Ontex executives say.

In Mexico, Mabesa offers a full product portfolio that includes baby diapers, feminine hygiene items and adult incontinence products and it has become the second largest player across all of its personal care categories with a No. 2 position in baby care. Mabesa's baby diaper brands include Chicolastic and BBtips, and the company also offers a number of retailer brands.

"I was waiting for Ontex to enter the Brazilian market with the purchase of Hypermarcas," says industry consultant Carlos Richer. "Instead it decided to purchase Mabesa. In my opinion, it was a better strategic decision. Mabesa has been growing locally and internationally; their own brands in Mexico have been taking market share, especially after the disappearance of Pampers in Mexico last year."

Hanna ponders whether this acquisition will create another strong private label competitor north of the border. "Mabesa produces under contract, many of the environmentally-friendly diaper brands sold by U.S. marketers—they've made a specialty of supplying that segment of the market. She suggests that Ontex eventually may become a major private label supplier in North America now that the company has gained a hygiene plant in Mexico that could be cost competitive for the store brands of retailers located in the U.S. southwest.

Meanwhile, Drylock, another Belgian diaper manufacturer—inventor of the fluffless diaper—continues to focus on innovation in the private label sector. The company has been producing diapers for just over three years, offering a lower-priced low fluff style in addition to the super-thin fluffless premium diaper, both under the Magics name.

In 2015, Drylock's second generation fluffless diaper debuted with modifications made to the core as well as in the raw materials used for faster absorbency. In the next month or so, Drylock will be rolling out its third generation fluffless diaper that Drylock founder and CEO Bart Van Malderen calls a "textile fit." The backsheet and topsheet will be softer, and the core will once again be improved, he says. Drylock is also the first to launch a color-integrated diaper concept comprising a color printed topsheet.

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"What we see and what we actively put into private label is thinner and softer," Van Malderen explains. "That's the direction it's going. The biggest thing for us was to come up with the fluffless diaper—we keep innovating with even thinner and softer materials that are being used now."

Magics are currently available in all European countries, and the diapers have also started being shipped to China. Early this year, Van Malderen reveals that Magics will start selling in the U.S. via internet sales.

In the U.S., Dallas, GA-based Bemax Inc., which began exporting and distributing private label disposable baby diapers in 2012, announced in September it would be launching a line of private label disposable diapers and wipes. Promoted under the Mother's Hugs brand name, the diapers and wipes will be sold and distributed through existing Bemax distribution channels of wholesalers and retailers in Europe and emerging African markets, as well as to buyers online through the Bemax e-commerce website. The first phase of the launch will begin in the first quarter of this year.

"The emerging markets, especially in Africa, are not adequately tapped," says Bemax's CEO Taiwo Aimasiko. "We see the potentials these markets offer as more and more people are now using the product. New birth increases and overall decreases in the use of cloth diapers offers more opportunities. Bemax is well positioned to capitalize and bring value in terms of lower prices. Currently there are few disposable diapers manufacturers in Africa. Most disposable diapers are imported."

Aimasiko adds that private label offers more options for disposable diaper consumers as well as reduced prices. With the popularity in the emerging African markets growing, especially in outside major cities areas, the company expects this trend to continue in the foreseeable future.

Diapers Emerge Elsewhere

Low penetration rates, high birth rates, and growing disposable incomes in many emerging markets have opened up opportunities for diaper manufacturers.

Mumbai-based Nobel Hygiene Ltd. (NHL), which started off making disposable adult diapers in 2000, is gaining traction in India with its Teddyy brand of baby diapers. Kamal Johari, founder and managing director of NHL, claims Teddyy is the largest Indian baby diaper brand.

In India alone, diapers and diaper pants saw retail sales growth of 38% in volume terms in 2014, according to market tracker Euromonitor.

Last February, Nobel gained a $10 million investment from a private equity investor—Aria Investment Partners. At the time of the investment, Miranda Tang, managing director of the Aria funds, said: "Changing lifestyles, evolving social habits and favorable demographics structure, coupled with low diaper penetration, has resulted in diapers being one of the fastest growing FMCG categories in India. The Aria team's aim is to assist NHL to scale its operation, enhance its brand and prepare it to capture the exponential growth potential in this space."

Although India's baby diaper market is growing and is expected to continue on this path, Johari says it's currently at a slower pace than expected.

Meanwhile, in March, SCA opened its first production facility in India—a SEK 150 million ($17.6 million) investment. Located in Pune in the central Indian state of Maharastra, the plant produces baby diapers under the Libero brand and Tork tissue for the Indian market.

At the time of the inauguration, SCA president and CEO Magnus Groth said, "The low penetration of hygiene products and the large population in India provide the potential for future growth. The plant in Pune will enable us to further leverage the growth potential in India. The investment is in line with our strategy of strengthening SCA's presence in emerging markets."

Ahead of the facility opening in Pune, SCA put forth major promotional activities in the country. Groth said SCA's team in India launched its biggest information and

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educational campaign in 2014—reaching 2300 doctors, 5000 hospitals and clinics, and 1.2 million mothers and babies in the world's second most populous country.

Elsewhere in Asia, SCA announced in October a "strengthened cooperation" with Vinda International Holdings Ltd. by integrating its business in Southeast Asia, Taiwan and South Korea into Vinda. SCA is the majority shareholder in Vinda, one of China's largest hygiene companies.

As part of the agreement, Vinda gained the exclusive license to market and sell SCA's Libero baby diaper brand, in addition to other SCA brands including Tena (incontinence products), Tork (Away-from-Home tissue), Tempo (consumer tissue), and Libresse (feminine care), in South East Asia, Taiwan and South Korea. As part of the deal, Vinda will hold the rights to these product brands in these Asian markets. Additionally, Vinda will acquire the brands Drypers, Dr.P, Sealer, Prokids, EQ Dry and Control Plus in these markets. SCA says it will continue to provide innovation and technical support for the business.

"Asia is an important growth market for SCA with a large population and low penetration of hygiene products. This transaction strengthens the collaboration between SCA and Vinda and enables us to further leverage on our strengths to build a leading Asian hygiene business," Groth says.

Subscribe and Save

While disposable diapers themselves offer substantial convenience for today's parent, adding e-commerce and subscriber services to the mix has been a game changer for moms and dads short on time.

One of the most notable successes in this area has been Amazon Mom, a program through Amazon Prime that offers parents a 20% discount on diapers when ordered through its subscription service. Upon signing up, Amazon automatically ships out diapers of a customer's choosing when they need them—once per month, once every two months, and so on. Target also joined the subscribe and save bandwagon by offering a 5% discount to customers who subscribe to automatic diaper deliveries.

"Subscription models are trending and they will keep growing faster," says Richer. "Not only do they keep track of each individual consumer by suggesting order count and changes in sizes, they also have mastered the art of how to keep consumers happy and well motivated. Club members are their best promoters. They also take advantage of their feedback and provide a strong communication channel between the brand and the consumer."

Regarding these services, Hanna adds, "It's a growing, worldwide phenomenon fueled by convenient, free shipment delivery and by the fact that it's an easy way to ensure that you're getting good value because it's so easy to compare pricing online."

One industry-related issue, she notes, is that these diaper online subscriptions are causing problems for those monitoring market shares, if the retail share audits only track purchases made at the actual retail store and do not include the retail store's online sales. "The diaper manufacturers, when they sell diapers to Walmart, Target and other major retailers with strong website sales, may not know how many are being delivered from the online orders and how many are going for people purchasing diapers in the store itself. So the audit data can be misleading as it may underestimate the market size and may not accurately reflect diaper share positions in all distribution channels. That issue raises questions on what really is the total market growth and what are the market shares of brands and the private label market segment."
(Source from: "www.nonwovens-industry.com")

Campen, Autefa join forces

Companies will jointly make airlaid, airlaid/spunlace lines

Autefa and Campen Machinery have partnered to make make machinery for airlaid and spunlaced/airlaid nonwoven products as well as for the new Hydro Laced Airlaid Process"(HLAL) for non-flushable and flushable, dispersible and biodegradable nonwovens, which invented by Campen.

André Imhof, CEO AUTEFA Solutions Austria GmbH and Arne Christensen, CEO CAMPEN Machinery A/S explains, "With our two companies we are building a

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strong partnership. Each of our companies has developed new and energy-saving technology. Together we offer complete lines to produce flushable wipes. With our combined portfolios we offer advanced production technology, starting from raw material to the final nonwovens products."

Autefa Solutions offers spunlace, drying and powder scattering technology as well as carding and card feeding technology. For the spunlace process Autefa has developed a new hydroentanglement jet with a design enabling 30% energy savings. A new Square Drum Dryer SQ-V completes the line.

CAMPEN Machinery is the specialist for webforming from pulp fibers, or other fibers, via fiber dosing, hammermill and airlaids technology, compacting/embossing or calandering units, as well as the winding technology of airlaids or spunlaced airlaid products.
(Source from: "www.nonwovens-industry.com")

Mobi-Air receives advanced robotics grant

Company will invest new grant from Singapore in manufacturing automation

Singapore based Mobi-Air, maker of modular plug-and-play air handling systems, has received an additional capability development grant (CDG) whose purpose is to, in part, underwrite mass production of factory air filtration systems and preemptively drive the company's advanced technology to commodity price points.

According to Jessica Xing, Mobi-Air finance manager, the majority of the company's production will be fully automated and located in Singapore. Active sourcing of key assemblies will be maintained in Vietnam, Malaysia and Germany.

Martin Scaife, Mobi-Air managing director, adds, "We are very happy to have our HQ located in Singapore and are looking forward to completing the last automation phases of the project. Having a single, flexible plug & play filtration system capable of being used across all adult, baby, fem and tissue production facilities is great for the hygiene industry overall. However, more importantly we have set a new standard in open process window air handling technology. End users can now expect to process between 0-80KCMH from a modular platform with a lower component count that readily adapts to automatic assembly."

To go with this initiative, Mobi-Air will be completing a tree planting program in 2016 to off-set carbon emissions of the total product development life-cycle, including these additional automation phases.

The new automation systems use a mixture of internally developed automation processes as well as multiple commercially available 6-axis robotics that are expected to come on-line later in 2016.
(Source from: "www.nonwovens-industry.com")

Truetzschler Sells Manmade Fiber Business

Oerlikon will integrate business into manmade fibers group

Truetzschler Nonwovens has plans to sell its staple fiber technology to the Manmade Fibers segment of Oerlikon Group to concentrate more specfically on its nonwovens machinery and filament lines businesses.

"With this restructuring in Egelsbach we will focus our capacities and competencies on the key topics of our nonwovens' customers. It will shorten the time to market of our innovative solutions and will further strengthen our worldwide service," says Dr. Georg Reinhold, managing director and CEO of Truetzschler. "Truetzschler's name stands for technological innovations as well as for a high level of customer focus. In this regard, we will set new standards."

Business with spinning plants for carpet yarns (BCF) and industrial yarns (IDY) will not be affected by this change.

The Oerlikon Group will integrate the staple fiber technologies into the Oerlikon Neumag business.
(Source from: "www.nonwovens-industry.com")

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Battery 2020 - battery materials for future electro-mobile and stationary applications

German consortium HiPoLiT is researching fast-rechargeable lithium energy storage systems with improved energy density. The BMBF is funding the project, which was launched in January 2016. Another major concern of the project is to reduce the cost of battery production. This will be achieved by reducing the number of interconnected cells and by using high-voltage cathodes and larger cell sizes.

German consortium combines strengths

Based in Weinheim, Germany, Freudenberg Vliesstoffe SE & Co. KG is coordinating the HiPoLiT project. As part of the project, the company is developing new, ceramic and flexible high-temperature and high-performance battery separators. Johnson Matthey Battery Materials GmbH, Moosburg, will contribute application-specific optimized anodes and innovative high-voltage cathode powder. These components will be combined into prototype cells at the Fraunhofer Institute for Silicon Technology, Itzehoe, along with novel electrolyte formulations from the MEET (Münster Electrochemical Energy Technology) battery research center at the Westfälische Wilhelms-Universität in Münster. Once that has been achieved, battery cell manufacturer Liacon GmbH, Itzehoe, will translate this development into practically applicable large-sized cells. The cells will then be integrated into functional battery systems by Batterie-Montage-Zentrum GmbH, Karlstein-am-Main, which will subsequently be tested in an actual electric boat drive by Torqeedo GmbH, Gilching, a leading global provider of electric boat motors.

The BMBF is supporting the HiPoLiT project between January 1, 2016 and December 31, 2016 with around two million Euros.

About HiPoLiT – High Power Lithium Technology

Industrial enterprises and application oriented research institutes are working together within the HiPoLiT consortium in order to support the expansion of electromobility through improved fast- charging capability, and improvements in energy density and production costs.

This consortium comprises the Batterie-Montage-Zentrum GmbH, Karlstein am Main, the Fraunhofer Institute for Silicium Technology, Itzehoe, Freudenberg Vliesstoffe SE & Co KG, Weinheim, Johnson Matthey Battery Materials GmbH, Moosburg, Liacon GmbH, Itzehoe MEET (Münster Electrochemical Energy Technology) the battery research center of the Westfälischen Wilhelms- Universität Münster, and Torqeedo GmbH, Gilching. Freudenberg Vliesstoffe is heading the project.
(Source from: "www.inda.org")

ACC announces hot melt lamination capability

Adhesive Laminations Up 124"

Green Bay, WI, February, 2016: American Custom Converting (ACC) has announced the addition of a 124" ITW Hot Melt Extruder to their asset portfolio. The new addition will facilitate the lamination of many substrates including: Paper, Nonwovens and Films. The new machine has a range of adhesive add-on rates from 1 to 30 gsm and can process a large number of different adhesive types. The new lamination line can accommodate incoming rolls up to 90" in diameter, on a variety of core sizes with widths as low as 60". Finished roll diameters can vary from 30" to as much as 59" with slit widths as low as 4". According to ACC's Mark Kyles, "the addition of this asset is a large step forward in our strategic plan to diversify our service offerings and further increase the value we add to our customers products".

ACC provides Slitting & Rewinding, Folding & Packaging, Laminations, Coating and other custom converting services. ACC was founded in 1998 and operates out of a 90,000 sf plant located in Green Bay, WI.
For more information please call Mark Kyles at (920) 370-4755
(Source from: "www.inda.org")

Germany's Dr. Schumacher expands personal care wipe plan

50,000 square foot facility opens four years after older site was lost in fire

German personal care wipe maker Dr. Schumacher GmbH has established a new production facility in Luban, in southwest Poland. The plant, developed under a PLN150 million (€35 million) investment is 50,000 square meters and houses 45 production

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lines. The new plant was completed four years after the German manufacturer's previous Luban factory was destroyed in a fire.

The location of this facility in the country's Kamiennogorska special economic zone (KSSE), in Poland's southwestern region of Lower Silesia, will make Dr. Schumacher eligible for preferential tax treatment for its investment.

"Dr. Schumacher is a world-renowned brand. The standards and technologies used in this project reflect the latest global trends," says Iwona Krawczyk, the chief executive of the special economic zone.

According to Krawczyk, the new factory makes Dr. Schumacher the largest investor in Luban.

Poland's special economic zones are to remain operational until the end of 2026, according to a decision made by the Polish government in 2013. In return for preferential tax treatment for their manufacturing projects, companies that establish production facilities in these zones are required to maintain the plants' target workforce at a level agreed upon with local authorities.

The new factory is currently operated by a workforce of 660, and company representatives told local news site Eluban.pl that they aim to create an additional 90 jobs in Luban.

Dierk Schumacher, the German company's co-owner who was also present at the official opening ceremony last February, said that the plant represents the largest investment in the company's history.

"We see ourselves as a leader in quality. Accordingly with this future-oriented stance, we have invested in a machine park which has no equal," Schumacher says. "As a family-run business, we know from the beginning that we will finance a new facility."

Increased Output Capacity in Poland

What is noteworthy, the new plant was opened on the site where a wipe plant burned down in July 2012. The facility, established by the company's local subsidiary Dr. Schumacher sp. z o.o., was operated by a workforce of about 411 employees at the time of the accident. Today, the rebuilt plant allows the manufacturer to expand both its workforce and output capacities, as the factory's 45 production lines are able to produce 100 million packs of wipes per year.

According to estimates by Dr. Schumacher, compared to the company's previous production facility in Luban, the new factory will allow the manufacturer to achieve a five-fold increase in output.

Dr. Schumacher says it is one of Europe's leading companies specialized in the development and production of disinfectants, hygiene and personal care products, as well as wet wipes for baby care, cosmetics, personal hygiene and other household products. The German firm makes about 200 million packs, fitted with some 10 billion ready-to-use wipes, per year. This means that the Polish plant will represent as much as 50% of its aggregate annual output. Moreover, the firm's production capacities comprise some 5,700 tons of disinfectants per year, according to data released by Dr. Schumacher.

The German manufacturer says that its production facilities are enabled to produce products with all nonwoven materials offered in the baby care area, up to 55 gsm or higher.

Dr. Schumacher claims it is aiming to ensure a high degree of flexibility in the packaging formats. Its output ranges from flowpacks fitted in sizes ranging 15-80 wipes in the usual sizes to multipacks, travel sizes and mini pocket formats, depending on the customers' needs.

Among other retail channels, the firm's product portfolio is distributed through Germany's drugstore chain Rossman which also operates a major retail network in the Polish market. In addition to Germany and

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Poland, the chain owns retail outlets in the Czech Republic, Hungary, Turkey and Albania which provides Dr. Schumacher with further possibilities of foreign expansion.

Set up by Dr. Henning Schumacher, the company is currently managed by its founder's two sons, Jens and Dierk Schumacher, who currently both serve as the firm's authorized managing directors.

All of Dr. Schumacher's production facilities are ISO 9001, 13845 and 14001, as well as GMP, QAKE and EU-Öko-Audit certified.

Luban is located about 316 km from the country's capital Warsaw.

Poland Eyes Positive Economic Outlook

The latest investment by Dr. Schumacher indicates that foreign industry players are motivated to expand manufacturing activities in the Polish market, attracted by the country's location between Western and Eastern EU member states, as well as by its well-skilled and relatively inexpensive workforce.

According to the latest available figures from the Polish Minister of Family, Labor and Social Policy, Poland's registered unemployment level stood at about 10.3% of the country's total active workforce in February 2016. While this is less than the 11.9% posted in the same month a year earlier, Poland's level of unemployment still allows local manufacturers to recruit workers for their production activities in a relatively short timeframe.

Over the past years, Poland has been attracting an increasing number of investments by foreign companies. The economic downturn in the Eurozone has not exerted a major impact on the country's economy, as Poland was the only EU member state to report a positive gross domestic product (GDP) growth in 2009, when it rose by 2.6% compared with a year earlier, according to figures from the World Bank. In 2015, the Polish GDP posted an increase of 3.5% year-on-year.

Moreover, should the World Bank's positive outlook for the country's economy be confirmed in the forthcoming years, Poland is looking ahead at least two years of consecutive economic growth.

In 2017, the country's economy could expand by as much as 3.7% compared to this year, and in 2018, Poland could see its economy rise another 3.9%, as indicated by data released by the bank. This would place the Polish economy among both the region's and the EU's most rapidly expanding ones, as neighboring Lithuania and the Czech Republic are expected to post lower GDP growths for this year and increase the country's attractiveness to potential foreign investors. (Source from: www.nonwovens-industry.com)

Finding success in reducing core thickness

The balance between core integrity and absorption performance

The ongoing movement toward thinner disposable hygiene products means producers must take a completely different approach to core design. As core fluff is decreased or eliminated, core integrity becomes critical. Essential to core integrity are adhesives and the testing of both core integrity and absorption performance.

As with any dynamic system, when the fluff-to-SAP ratio is altered, it can impact the performance of each of the other components. For optimal overall performance, producers and suppliers must look at the core system in a holistic manner.

Testing Core Performance

There is no single, industry standard lab test method to measure core integrity or the stability of the fluff/SAP distribution within the diaper core. Tests being used today range from employing simple tools to complex equipment and from acquiring quantitative to qualitative results. Most of the market focuses on testing core integrity directly by exerting force on the diaper to observe core cracking as a measure of how well the core stays in place within the diaper. The force is generally some type of mechanical dropping, spinning, shaking or swinging after the diaper is insulted with a precise quantity of liquid for a specified length of time.

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A more holistic approach goes beyond considering that core integrity is important only when the fluff is wet. It means learning how the core behaves when the wearer is moving because the core needs to remain in one piece, as cracking and shifting before insult could translate into leakage.

Core Integrity Test Methods

The Conditioned Core Cracking Test recognizes the validity of shaking a core to evaluate its integrity, as well as testing, when the core is wet. This test also adds a new element: preconditioning and testing a dry core, or "conditioned core cracking."

A "crack" is a separation in the core. At some point during the second round of drops, if adhesive is used, the core will separate due to gravity and the weight of the wet fluff, SAP and liquid. As well as being uncomfortable for the user, an additional insult will also not be properly absorbed. Instead, the liquid will creep into the crack that has been created and is likely to leak out of the diaper.

Other test methods include:

Core Cracking: Quantitative test: analyzes diapers, often using a Hardy Integrity Tester (HIT). After insult, the core is dropped until cracking is observed.

Spin/Tumble Testing: Qualitative test: after insult, diaper is placed in a washer, dryer or centrifuge type device, sometimes with tennis balls or other objects inside or outside of the diaper, and observed for cracking after a fixed amount of time.

Core Shaking: Qualitative analysis: after insult, diaper is shaken on a machine until cracking is seen.

Manual Core Shaking: Qualitative analysis: after insult, diaper is shaken by hand until cracking is observed.

Visual Check for Core Bonding: Qualitative analysis: after insult, Topsheet/layer in contact with core is peeled back to observe retention of SAP/fluff. More retention indicates better wet strength.

Wet Peel: Quantitative test to demonstrate effectiveness of adhesive bonds after insult. A tensile tester records average peel strength in a wet environment. Substrates being bonded may be Tissue/Tissue, Tissue/Nonwoven, Nonwoven/ADL, etc.

Actual Use Testing: Creates a complete picture of actual in-use core cracking: cracking is observed in used diapers received from market testing, consumer feedback, etc.

Considerations for Absorption Performance

While core integrity plays a powerful role in absorption performance, good core integrity results don't automatically equate to good absorption performance. Absorption performance should also be closely evaluated as part of a holistic approach.

To ensure absorption performance, manufacturers should evaluate:

- Acquisition. How fast liquid can be absorbed into the core, sometimes under pressure
- Distribution. How well the entire core is utilized after acquisition
- Rewet. How effective is the core at keeping wetness away from the skin under pressure after initial and multiple insults
- Total Capacity. Measures maximum amount of liquid core will hold
- Wicking. How far can liquid be transported within the core, associated with core density/ compaction

Conclusion

As the thin core trend grows and continues to spread across the global market, it's critical that producers and suppliers adopt a holistic approach in answering the demand. An important part of that holistic approach is understanding the various test methods and applying the ones that test against defined performance goals while reflecting the consumer's experience in use.

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

NIOSH calls for innovation in personal protective equipment for healthcare workers

Can nonwovens come to the rescue?

The National Institute for Occupational Safety and Health (NIOSH, a division of the Federal

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Centers for Disease Control) has established a website of interest to nonwovens producers who offer personal protective equipment (PPE)—including surgical gowns, isolation gowns, aprons, caps and the like —to the healthcare market. The site, www.ebolagrandchallenge.net, is an outgrowth of NIOSH concerns about the recent Ebola epidemic that ravaged West Africa and the fact that two healthcare workers who treated patients were infected by the disease.

NIOSH is particularly interested in solutions which will allow healthcare workers to don PPE for extended periods in the harsh heat and humidity where Ebola has been able to thrive. Yet according to the Agency, healthcare workers in West Africa report that they can only wear PPE for 40 minutes at a time, and even in the U.S. where virtually all healthcare settings are air conditioned, NIOSH reports that "uncomfortable PPE is a common complaint and causes additional burden for healthcare workers."

The issue is so important that President Obama addressed it directly in a speech late last year at the Global Health Security Agenda Summit: "And today, I'm pleased to announce a new effort to help health workers respond to diseases like Ebola. As many of you know firsthand, the protective gear that health workers wear can get incredibly hot, especially in humid environments. So today, we're issuing a challenge to inventors and entrepreneurs and businesses of the world to design better protective solutions for our health workers. If you design them, we will make them. We will pay for them. And our goal is to get them to the field in a matter of months to help the people working in West Africa right now. I'm confident we can do this."

Picking up on these comments, NIOSH—along with other CDC offices—has partnered with the U.S. Agency for International Development, the White House Office of Science and Technology, the U.S. Department of Defense, and others to kick off an initiative dubbed "Fighting Ebola: A Grand Challenge for Development."

According to NIOSH, the Grand Challenge consists of several initiatives, including the development, testing and scaling for entirely new forms of PPE—or modifications to PPE already on the market—that address issues of protection, heat stress and comfort. Key components of the Grand Challenge include "broadly soliciting new ideas through social media" (i.e., crowdsourcing) as well as forging "public/private partnerships and providing critical funding for promising designs."

Through crowdsourcing—which is a component of the ebolagrandchallenge.net website—NIOSH says it's attempting to promote innovation, reviewing promising concepts that can be scaled to the field and setting performance, test and evaluation requirements based on eight "knowledge generation priorities" for protecting healthcare workers from Ebola.

Over the past nine months NIOSH says it has evaluated PPE "ensembles" that are currently used in West Africa and the rest of the world and has collaborated with partners in the U.S. and abroad to "develop solutions to improve PPE configurations in the future."

Examples of these efforts include:

Use of a "sweating thermal manikin" along with human testing to evaluate several common ensembles used in West Africa and around the world in an effort to better understand factors associated with heat stress and design features that affect comfort and job performance; undertaking studies (including the "elbow lean test" and a "modified version of the ASTM F1671") to better understand factors that affect penetration of microorganisms in blood and body fluids through protective clothing; and research on isolation gowns to evaluate their durability and ability to prevent penetration of viruses in blood and body fluids.

On April 11, 2013, NIOSH published a "Notice of Opportunity to Support Research" in the Federal Register calling for the voluntary submission of laundered and non-laundered isolation gowns for testing in the Agency's National Personal Protective Technology Lab. The purpose of these tests, according to NIOSH, wasn't specifically related to Ebola but, instead, is intended to support ASTM efforts to establish minimum performance requirements for isolation gowns used by health care workers generally.

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In its request for sample submissions more than two years ago, NIOSH requested a minimum of 100 units for each single-use isolation gown model to be tested as well as at least 200 unprocessed, unused and unwashed reusable gowns for each model submitted.

The agency further stipulated that reusable gowns submitted for testing must include a labeling recommendation for the maximum number of laundering cycles to be included in this study. Half of the gown samples would be tested after one laundering/drying cycle and the other half would be tested after undergoing the maximum number of cycles claimed allowable by the manufacturer.

NIOSH recently presented the findings of its single-use review at an APIC conference in a poster with the following conclusions: 1) isolation gown strength properties show a wide range of distribution; 2) seven models of gowns out of 22 models test did not meet AAMI PB70 barrier claims made by their manufacturers; and 3) seam and/or tie construction may not be adequate for some isolation gowns to provide sufficient protection. These finding should be an alert to the nonwovens industry that stiffer ASTM standards for surgical and isolation gowns may be on the way, and a summary of the findings is available at tinyurl.com/o3oaqhp.

As for the laundered products being studied, NIOSH says that portion is "on going," and they're "hoping" to have it completed by the end of this year. The re-usable review is taking longer because the gowns have to be laundered to the maximum number of laundering/drying cycles recommended by the manufacturer (typically 75-100 times) and then their performance has to be evaluated. Right now, according to NIOSH, the Agency is evaluating the performance of one-time-washed reusable gowns.

One final question NIOSH says it's trying to ask with all this research is, "What PPE constitutes an 'acceptable' level of protection against pathogens like Ebola virus in blood and body fluids?"

While ASTM and ANSI standards are in place to evaluate surgical and isolation gown performance, NIOSH says a challenge for healthcare workers is "selecting the most appropriate protective clothing… based on the recommendations, practices and regulations." The Agency goes on to note that this challenge is complex because "there is no industry consensus for using these terms," and "Evidence-based guidance is needed in order to define these terms to improve communication among employers/purchasers and gown and coverall manufacturers/suppliers. "

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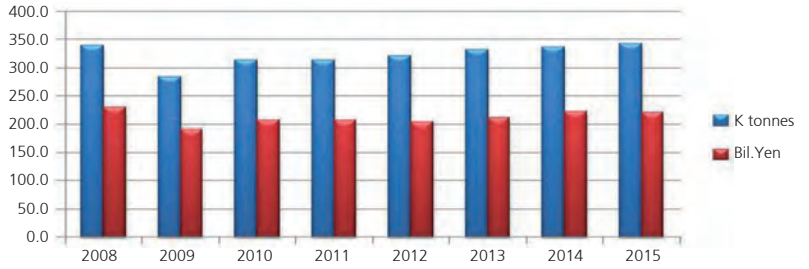
Japan nonwovens production

Japan nonwovens production (2008 – 2015)

(Source: METI)

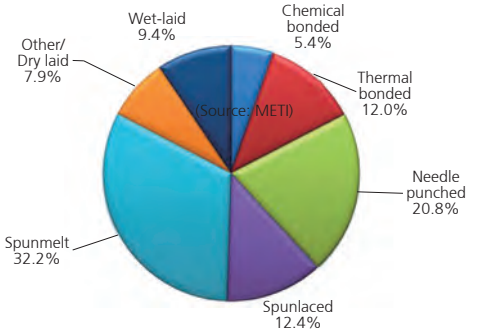
	2008	2009	2010	2011	2012	2013	2014	2015
K tonnes	338.4	283.4	313.4	313.0	320.9	331.5	336.3	342.0
Bil.yen	228.8	191.0	206.9	205.7	203.5	210.2	221.3	220.6
yen/kg	676	674	660	657	634	634	658	645

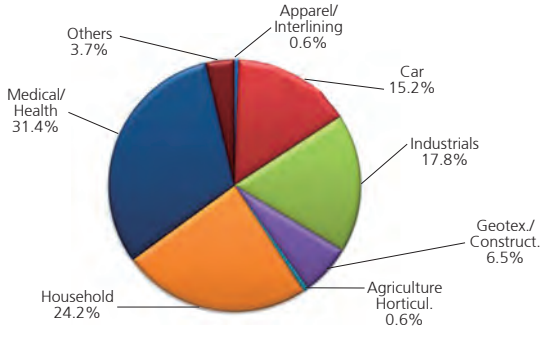


[Ref.] Nonwovens production in foreign countries by Japanese companies (Investment ratio: at least 49%)
2012: 165.1 K tonnes, 62.3 B yen,
2013: 196.3 K tons, 84.1 B yen,
2014: 222.5 K tonnes, 103.2 B yen

Japan nonwovens production by technology & application (2015) (342.0 K tonnes)

(Source: METI)



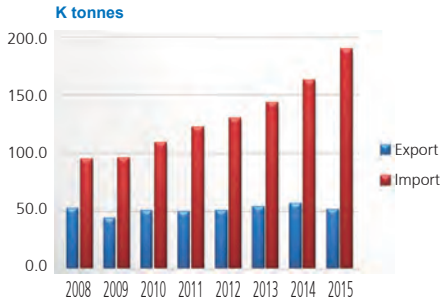


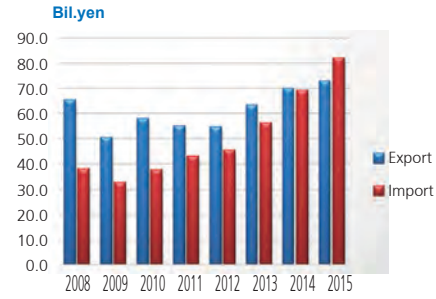
Area Report

Japan trend in export & import (2008 – 2015)

(Source: Ministry of Finance)

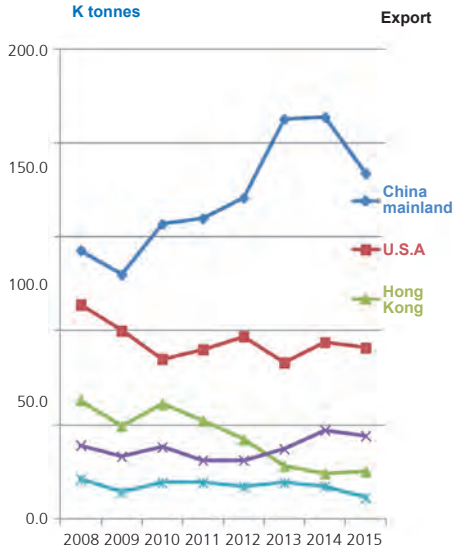
		2008	2009	2010	2011	2012	2013	2014	2015
K tonnes	Export	52.1	43.0	49.8	48.9	50.5	53.3	56.4	51.3
	Import	95.2	95.8	108.3	122.2	129.6	142.8	163.0	189.8
Bil.yen	Export	65.2	50.2	57.9	54.8	54.4	63.1	70.1	73.0
	Import	37.8	32.7	37.5	43.1	45.6	56.2	69.2	82.0
Unit	Export	1,251	1,167	1,163	1,121	1,077	1,184	1,243	1,423
(¥/kg)	Import	397	341	346	353	352	394	425	432

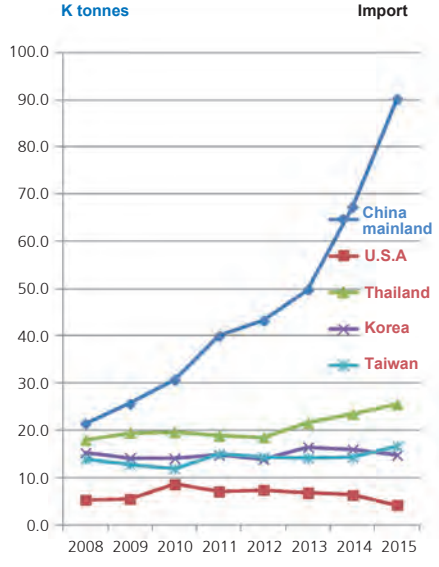




Top 5 Countries in export & import of japan

(Source: Ministry of Finance)





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Taken together all this appears to offer opportunities and challenges for the nonwovens industry, which will benefit from potential funding and a Presidentially-guaranteed market for more comfortable and higher performance PPE while possibly facing stiffer standards and backing up performance claims.

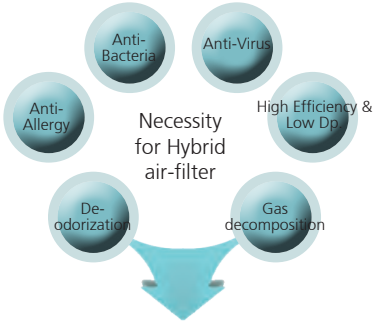
(Source from: "www.nonwovens-industry.com")

Development of synthetic HEPA filter on using Electro-spinning and melt blown process with multi-functionality

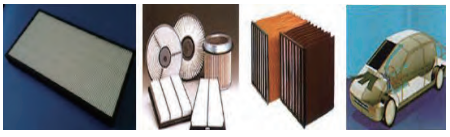
James Kim
Dong Wha co.,Ltd

Necessity

-Demand increase for high functional filters media against issue on indoor air quality
-Necessity for human and Eco friendly filter media against non-eco glass media.



Application

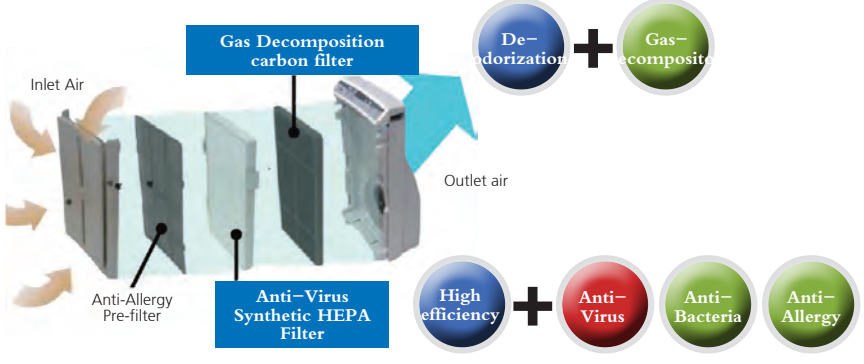


Demand

Target of Hybrid Filter

Final Goal

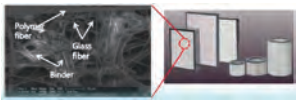
Multi-Functional HEPA Filter with Anti Bacteria and Virus, Allergy, De-odorizaton.
"Development of Shynthetic Hybrid(E/S+M/B) HEPA filter for Eco-Control"



Key technology
Synthetic HEPA filter

Before

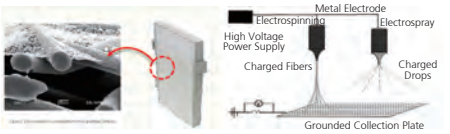
Using Glass wet-laid media and Eletret M/B media(Non-Eco & Human friendly and High Dp)



After

- Development of Synthetic Hybrid (E/S +M/B) HEPA filter for Eco-Control
- with Multi-Functionalality such as Anti Bacteria and Virus, Allergy, De-odorizaton. (Eco &Human Friendly and Low Dp)

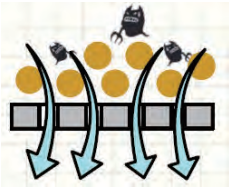
High Efficiency & Low Dp with Multi functionality



Anti Allergy

Before

Simple-Capture Bacteria and Mite



Simple-Capture Bacteria and Mite
→Glowth of Bacteria and Mite
→Discharge of digestive enzyme –protein (Derp1)
→2nd Contaminaton

After

Development of New Anti Allergy agent decomposing DerP1(digestive enzyme-protein) on adsorbing Chemically

Physically Capture
+
Anti Allergy agent decomposing DerP1(digestive enzyme-protein) on adsorbing Chemically

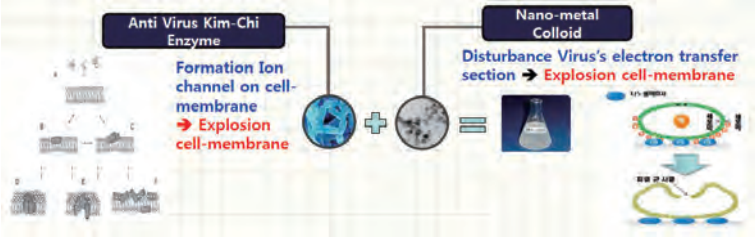
Anti - Virus

Before

Applied nano-silver and Ammonium section additives to filters.
Previous Anti-Bacteria agent:nano-silver Metal and Ammonium section additives
→No-Steriliztion power against Virus (H1N1)

After

Development New Anti-Virus Agent on using Kim-Chi Enzyme(against H1N1)



Deodorization

Bfore

Adsorbing bad-smell gas by micro-pore of ACP(Induce 2nd ontamination)

After

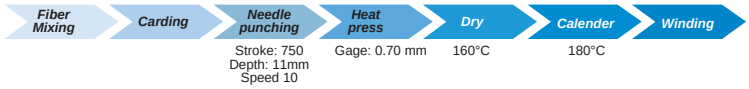
Decomposing bad smell gas by a attaching gas-decompoded catalyst into ACP.
Non-re discharging and long life cycle.

How to make Synthetic HEPA Filter

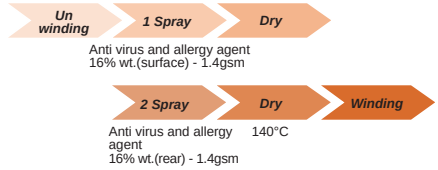
Development of Anti Virus & Allergy Substrates

Process1: Thermal bonding Process)
1 Fiber: LM PET 6de/51mm 50% + PET 10de/51mm 50%
Weight: 70gsm, Air Permeability: 500-600 cc/cm²/sec

1st: Making Substrates



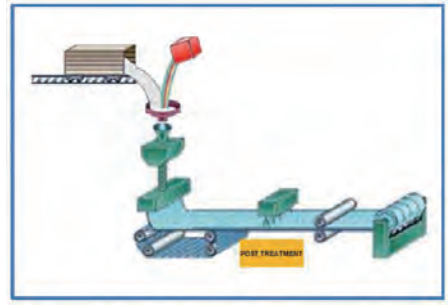
2 Composition: Anti virus agent(10%) +Anti allergy(6%) + Acrylic Binder(10%) +water(72%)
2st: Spray bonding with Anti virus and allergy agent

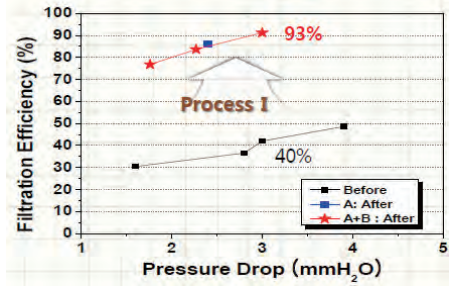


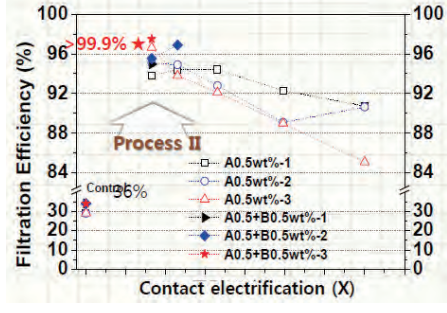
Development of M/B For Synthetic HEPA

Making of Hydro Cold Charged M/B

1) Additives
-A:Heat-Stability, Reduction of charge leakage
-B:Strong conductive materials(organic & Inorg)
2) Hydro cold Charging
- ProcessI: Non-contact electrification (inductive electrification)
-ProcessII: Contact electrification (conductive materials)





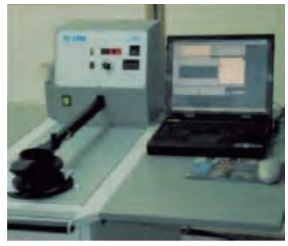


Technology News

Performance of M/B for synthetic HEPA

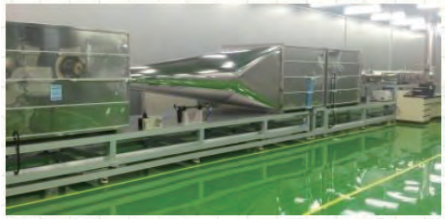
Specifications for making semi M/B-HEPA

* Testing Equipments



Air-permeability
(Tex TextAG-FX3300)

Efficiency and Dp
(TSI-8130)



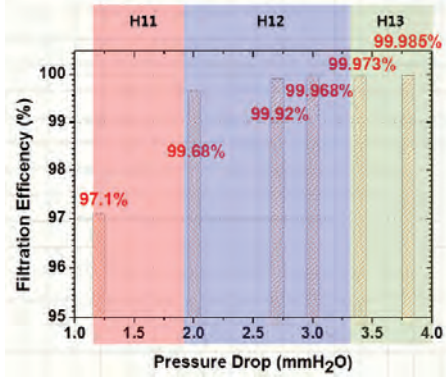
Measurement of Assembly
(KS B 6740, JIS Z 4812)

M/B Samples	MEDIA (NaCl, 32 LPM)			
	M/B(Self-Check out)		M/B(official Institute)	
	Dp (mmH_2O)	Efficiency (%)	(mmH_2O)	(%)
A	3.5	99.70	3.36	99.62
B	3.06	99.93	2.98	99.92

* Making of Various kinds of M/B with High Efficiency and Low Dp

M/B media		Target	Result
HEPA 11	(%)	⩾95	96.5
	(mmAq)	⩽1. 5	1.45
HEPA 12	(%)	⩾99. 5	99.74
	(mmAq)	⩽2. 3	2.18
HEPA 13	(%)	⩾99. 97	99.973
	(mmAq)	⩽3. 5	3.4

Relation between efficiency and Dp



Development of composited substrates by Electro-spinning for Synthetic Hybrid HEPA

• Making of composited Substrates by Electro-spinning

<Property of Anti Virussubstrates>

Feactures		
Width(mm)		1.3
Weight(g/m^2)		70
Thickness(mm)		0.35
Air permeability($cm^3/cm^2/sec$)		600
Tensile Strength (kgf/5cm)	MD	9.0
	CD	7.9
Elongaton (%)	MD	31.3
	CD	23.4

<Making of electro-static PVDF solution>

○ Raw materials

1) PVDF: (1) T co, 6133_Pellet type, PVDF Homopolymer. Contains: >96%

(2) S co21510_Powder type, PVDF resin copolymer HEP. Contains: 99.9%

2) Solvent: DMAc: N,N-dimethylacetamide, 99.5%

3) Acetone:99.7%

○ Condition: Hot plate(80°C & Stirrer, Mixing.

<PVDF Mixing Condition; High Concentration PVDF>

	Solution	Mixing Temp.	Viscosity	S.C
1	[DMAc(50%) +Acetone(50%)](80%) +[PVDF_Solvay 21510] (20%)	(80°C)	910cp, 20°C	21.37%
2	[DMAc(50%) +Acetone(50%)](75%) +[PVDF_Solvay 21510] (25%)	(80°C)	2800cp, 19°C	27.16%

Development of composited substrates by Electro-spinning

• Making of composited Substrates by Electro-Spinning

• Size of PVDF electro-spinning: 800-1000nm

<E/S on M/B surface after laminating substrates& M/B>: Using No.1 solution(20%)

• PVDF solution:Size of E/S: 800nm [DMAc(50%)+Acetone(50%)](80%)+PVDF_Solvay 21510] (20%)

• M/B+Substrate: HEPA12_M/B(30gsm)+LM70gsm [Hot melt]

• M/B(30gsm):Air permeability 35-40$cm^3/cm^2/sec$. Efficiency:99.2%, Dp:2.8mmaq

Technology News

Quantity of E/S (gr/m^2)	Before (SUBSTRATES+M/B)	3.7gsm after E/S	3.9 gsm after E/S
Weight(gsm)	103.2	106.9	107.1
Air Permeability ($cm^3/cm^2/sec$)	23.8	14.8	12.7
Efficiency(%)	99.3618	99.7641	99.8611
Dp(mmH_2O)	3.00	5.17	6.11

→ It's difficult that E/S stick on M/B surface
Dp is a little high than expected.

<Laminating M/B after E/S on surface of substrates>: Using No.2 solution

- PVDF solution: Size of E/S:1000nm [DMAc(50%)+Acetone(50%)](80%)+[PVDF_Solvay 21510](25%)
- M/B +Substrate: HEPA 13 +(Substrates +E/S) M/B(30gsm): 30gsm,
Air permeability: 25cm^3/cm^2/sec,
Efficiency: 99.95%,Dp:3.1mmaq

Quantity of E/S (gr/m^2)	Before (substrates+M/B)	M/B lamination after E/Spinning on substrates				
		3.7	3.9	4.3	4.5	6.0
Weight (gsm)	94.63	95.76	96.89	130.24	130.44	131.94
Air permeability ($cm^3/cm^2/sec$)	20.0	19.0	18.1	17	17	14
Efficiency(%)	99.970	99.9856	99.9876	99.990	99.997	99.998
Dp(mmH_2O)	3.86	4.71	4.96	4.55	4.0	5.36

It's easy that E/S stick on substrates.
Quantity and Size of PVDF is a little high(Cost Load)
Feasibility of Synthetic HEPA Filter on using M/B Semi-HEPA 12 grade.

New development of synthetic hybrid HEPA

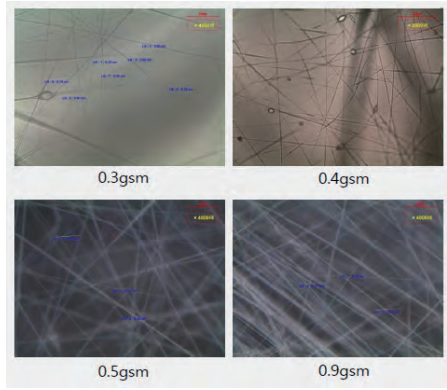
- Minimize of E/Spinning quantity on Substrates(Low concentration of PVDF:18%); Size of PVDF E/spinning:300nm

<Electro - Spining Cendition>

	CONDITION			
Solution	[DMAc(82%)+[PVDF_Solvay 21510](18%) Viscosity. 1100cP,54°C, S.C.19.97% (Hot plate(80°C))			
Substrate	Anti virus Substrates: 70gsm[LM 100%, 6de(5):10de(5)]			
Nozzle	25G(ID Size: 0.25mm)_Metal nozzle×100ea			
condition	Voltage	60KV	Spinning pressure	3kg.f
	Gear Pump	10 Hz	Solution Temp.	50°C
	Room Suction	15Hz	Spinning Room Temp.& H.R	26-27%, 32°C
	Spinning	250mm	Air Knif(temp.)	15Hz (80°C)
	Line Speed	5mpm	Dryer	110°C
	Quantity of PVDF	0.3-0.9. gsm		
PVDA	0.3gsm	0.4gsm	0.5gsm	4gsm
Pressure Drop (mmAq)	1.1	1.9	2.4	25
Efficiency (%)	61.7982	75.6249	88.2549	99.989

*Air Flow: 32L/min, Nacl Method.

Photograph of PVDF quantity on substrates



Result: M/B lamination with substrates which is electro-spinned by 300nm(0.5gsm)

Hybridization with M/B and Anti-virus Substrates which is electro-spinned

Completion of Making of Synthetic Hybrid HEPA filter

<Hot-melt applicator condition>

HEPA Filter Hybridization (Substrates 70gsm + PVDF: 0.5gsm) + M/B 12 grade (30gsm)			
Line speed	8.5mpm	Hot Melt quantity	3.0gsm
Ratio	400%	Hot Air	160°C
RPM	12	Gun	150°C

	[Anti virus substrates 70gsm +PVDF: 0.4-0.6gsm] +(HEPA 12 M/B(30gsm)]
Pressure Drop (mmAq)	3.9
Efficiency(%)	99.989%

*Air Flow: 32L/min, NaCl Method

Completion of Electro-spinning Hybrid HEPA

Making of Synthetic HEPA Filter for HVAC

<Synthetic HEPA filter for HVAC>

	[Antivirus substrates70gsm+PVDF: 0.5gsm]+(HEPA12)M/B(30gsm)]	Cf. Glass HEPA
Pressure Drop (mmH_2O)	5.3	25.0
Efficiency(%)	99.989%	99.97

*Air Flow: 32L/min, NaCl Method

Cell type HEPA filter for HVAC

Mini Pleat Half Assay Mini Pleat Assay

Technology News

Converting Process

Pleating & Making Assembly

* Knife Pleating

* Hot-melt-Mini Pleating for HEPA of Room air-cleaner

* Making Assembly for cell type HEPA

Physical Properties

Property	unit	Importance (%)	Property					Official Record	Standard
			First step	Second step		Final step			
				Target	Assembly	Substrates	Assembly		
Anti-bacteria	%	10	99.5	99.9	-	99.9	-	FITI	ASTM2149
Anti-virus	%	10	92	97	99	99	99	Kitasato in Japan	SHAKE FLASK
Anti-Allergy	%	10	70	90		99.7±0.04	-	(GENOSS)	Der p 1 ELISA
Deodorization	%	10	60	70↑	Over 70	NH3	83.3	FITI	
						HCHO	88.7		
						Toluene	97.5		
Airpermeability	cc/ cm^2/ sec	5	300	Over 300		630.2		FITI	KS K 0570
Uniformity	CV%	5	7	5	-	4.1	-	FITI	KS K 0570
Uniformity of E-SPRAY	CV%	5	7	5	-	1.8	-	KOTTITI	KS K 0570
Efficiency	%	10	99.5	99.9	99.97	99.99	99.99	KITECH	KS B 6141
Pressure Drop	mmH_2O	10	5	3.8	4.0↓	3.4	3.9		KS B 6141
Toxity	LD50, mg/L	5	-	>2,000	-	>2,000	-		
Skin Irritation	-	5	-	No irritation	- 18	NO irritatoin	-		2008-44

Marketing Status in Worldwide

Applicable Worldwide Market in Air Filter on using M/B+E/S process

* Application:Medium & HEPA filter, Cabin-filter for automobile,Room air-cleaner, Mask filter.

Market: 11B$.(on basis of roll goods)

* Growth rate/yaer:3%.

Year	2014	2015	2016	2017
Market Volume(B$) Roll goods	11.25	11.60	12.00	12.50
Assembly Market(B$)	56.25	58.25	60.00	62.50

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flapping or undulations in the filaments. The draw unit yields finer denier meltblown from increasing filament attenuation down to < 2.0 µm, however, larger fibers in the range of 10- 400µ may also be produced, according to end use. The draw unit additionally facilitates intermingling and partial bonding of the meltblown fibers to wood pulp fibers.

Discontinuous meltblown fibers may be produced at a targeted fiber length of 40-150 mm by adjusting the relative air flow velocities in the meltblown die head and the lower draw unit. In optional process configurations, meltblown or spunbond fibers can be formed from multiple die head spinning orifices.

The pre-bonded meltblown and pulp web is formed onto a moving conveyor and advanced into a thermal bonding calendar. In one configuration, the calendar has a smooth rubber roll backup roll and an engraved, patterned roll. The nonwoven webs may also be bonded by hydroentangling, ultrasonic bonding, mechanical bonding, adhesive bonding or through-air bonding.

(Source from: "Nonwoves Markets")

Technical Trends

Boma Engineering shows bilobal fiber coform process for absorbent uses

Common technologies for absorbent nonwovens include spunlace carded webs, airlaid pulp and coform. Coform refers to a process in which wood pulp is intermingled with meltblown fibers. Coform-type processes have been developed by Kimberly- Clark and other companies. Kimberly-Clark leverages the technology primarily for baby wet wipes. Coform developments in recent years have improved fluid management, web uniformity, softness, pulp fiber capture, meltblown fiber quality and overall raw material throughput. Interest remains, however, in improving the capability of the technology in areas of nonwoven fabric strength, pulp/meltblown fiber mixing, fiber size and length control and new nonwoven structures and applications.

In this patent application by Boma Engineering, SRL, a modified coform process, coform nonwovens and product applications for the nonwovens are disclosed. According to the process of the invention, polyolefin bilobal or trilobal and round cross-section meltblown fibers are coformed with superabsorbent and/or wood pulp fibers using multiple formers for layered and thermally bonded absorbent structures. Unique to this process design is a second draw unit positioned below a conventional meltblown die head which provides several processing and web property benefits. These advantages include smaller meltblown fiber sizes, lower air velocity in the meltblown head for improved pulp capture, control of discontinuous fiber length, processing of low melt flow polymers, higher tenacity meltblown fibers, improved pulp and meltblown fiber mixing and a level of fiber mixture pre-bonding.

Layered nonwoven structures are also provided in the development including a four-layer meltblown structure atop a spunbond layer with shaped meltblown fibers in layers three and four. The unique fabrics have higher web strength than conventional meltblown webs to due higher fiber tenacity from the second fiber attenuation step. Lam¬inates of the absorbent nonwovens of the invention are also disclosed with spunbonded webs, carded webs, other meltblown webs and plastic films. Applications for the absor¬bent nonwovens include dry or wet wipes, diapers, training pants, sanitary napkins, in¬continence products and bed pads.

According to the disclosed process, a curtain of meltblown fibers is first spun from a die head from several spinning orifices using a polymer with a melt flow index of 15-70. The fibers may have various cross-sections including round, bilobal, trilobal and oval. Bilobal meltblown cross-sections are preferred for improved bonding of the pulp and meltblown webs. Various homopolymers and copolymers of polyolefins, polyesters, polyamides, polylactic acid and certain elastomers can be processed as single component or sheath-core bicomponent fibers.

Particles and/or short fibers are then sprayed into the meltblown curtain from a nozzle. The nozzle has a chimney portion with two counter-rotating feed rolls and a compressed air source. The fibers are entrained in the airstream generated inside the nozzle and continuously delivered into the meltblown fiber curtain. The nozzle can feed wood pulp fibers, superabsorbent particles and other short fibers such as cotton fibers.

Just below the short-fiber feeding duct is a second meltblown fiber draw unit. The distance between the outlet of the die body and the inlet of the draw unit is adjustable.

The drawing unit comprises a vertical channel with a slot-type inlet and outlet.

The unit employs high velocity air by Venturi effect to attenuate the meltblown fibers supplied through four different chambers positioned on each side of the fiber stream. Ambient temperature and pressurized air are supplied to each side of the vertical channels by blowing ducts. The airflows in the meltblown die head and the drawing unit can be adjusted separately which improves the flexibility and control of the meltblown process setup.

The design facilitates controlled attenuation of the filaments without creating undesirable

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Product News

TJ Beall to showcase TrueCotton unbleached cotton

Product offers quality without sacrificing whiteness requirements in hygiene applications

TJ Beall would showcase its new model of TrueCotton unbleached cotton fibers today at the Boston Convention Center. This new line of natural fibers are an improvement over current models, as they are white in appearance and do not conflict with whiteness specifications required by downstream users in the personal care industry.

"We can now offer our TrueCotton fibers in brilliant white color while maintaining our position as the most competitively-priced natural staple fiber available for the nonwovens industry. Our fibers will now meet any whiteness spec without the need for chemical scouring and bleaching, and this will allow us to continue to offer excellent marketing opportunities through our fiber's unprecedented sustainability profile." says Lawson Gary, COO of TJ Beall.

Gary adds that its original model of TrueCotton, which has a natural, off-white color, has caused issues, for some brand owners requiring white nonwoven material, when blended with white thermoplastics. The new fibers can be blended with thermoplastics or used in 100% TrueCotton substrates with no issues of "yellowing" in the final roll. TJ Beall will showcase spunlace rolls of this new model of TrueCotton in 100% and 50/50 blends with polyproylene at the IDEA show. Additionally, TJ Beall will displaying samples of carded thru-air-bond, carded thermal bond, and spunlace nonwoven blends, containing the older model of TrueCotton, at IDEA.

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

Avgol to showcase hygiene fabrics

Avgol, the Israeli-based comany that is among the largest producer of spunmelt nonwovens in the world, would showcase its innovative range of products for the hygiene market at IDEA 16. Avgol manufacturers nonwovens at sites in North Carolina, China, Russia and Israel. Its most recent investment, a state-of-the-art Reicofil line, is currently being built at its North American facility in Mocksville, NC.

Avgol is able to produce a range of nonwoven fabrics for the baby diaper, adult incontinence and feminine hygiene sectors. These fabrics have been designed with softness, skin care and fluid management front of mind.

Shane Vincent, vice president of global sales, at Avgol, says: "We have developed a comprehensive range of ultra lightweight spun-melt nonwoven fabrics which are suitable for a variety of applications and reflect our passion for delivering quality products which contribute positively to the life and wellbeing of millions of babies, mothers and senior citizens around the world. Exhibiting at IDEA16 provides us with a great opportunity to meet our new and existing customers face to face to find out more about the challenges they are faced with in the sector. Events like this are the perfect way to engage and ensure that we are developing solutions which respond to market and consumer needs to give us that competitive edge."

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

H.B. Fuller to introduce new adhesive

Conforma is equipped to meet the changing needs of hygiene applications

H.B. Fuller would showase its new and unique Conforma adhesive at IDEA 16. "Adapting comfortably to a world of individual shapes and sizes and the needs of people to live a physically active lifestyle, our solution will offer exceptional comfort, performance and cost effectiveness and will be a perfect fit for today's hygiene market," says Kirstin Hedin, global hygiene marketing manager, H.B. Fuller.

For more than 30 years, H.B. Fuller has helped hygiene customers imagine, create and design solutions that touch people's lives in simple, yet profound ways. Changes in hygiene products have included less waste, improved absorption, thinner cores, greater fit and comfort, etc. The Full-Care brand is important to H.B. Fuller and its customers and their customers. It enables H.B. Fuller to collaborate on customer projects with a common goal–innovation, reducing costs. The hot melt adhesives for elastic attachment in its Full-Care 8000 series have been helping customers meet hygiene needs for years. The family of adhesives keeps elastic strands from creeping and can also be used for construction type bonds where extra strength is needed.

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

行业信息

意大利亚赛利无纺布设备有限公司为客户提供卷绕接收装置生产线

意大利A.Celli无纺布设备公司为客户提供落筒式非织造布卷绕设备

该设备将于7月份在欧洲上线

在4大洲设有分销机构及在欧洲有一家生产厂的国际型大公司，已经确认购买了意大利A.Celli公司生产的落筒式非织造布卷绕设备。该设备有10台自动组装和拆卸卷轴，将于2016年7月投入生产。

这家公司所购的这台设备，将装卷和卸卷的时间降到了最低，提高了生产效率。该设备只是一条完整线的一部分，这条新线生产热风穿透粘合非织造布产品，装有卷绕和在线分切装置，为客户提供制备主卷的落筒、复卷和完整的包装系统。一条全自动的生产线，一个真正的交钥匙卷绕系统。

由于该设备能将生产线上下来的纤网进行有效整合，能生产传统的或落筒卷装，意大利公司已作好准备，为满足每一位客户的需求，提供完整的、高度专业化的服务。

(资料来源:“www.nonwovens-industry.com”)

Low&Bonar公司的中国工厂开业

新工厂将生产Colback非织造布在亚洲市场用于地板材料、建筑材料和汽车材料

Low&Bonar在开幕式上称，一台价值2600万英镑（3270万美元）的生产设施将在长江三角洲的常州市生产Colback非织造布，该材料是一款拥有专利的高档品牌的非织造布。

新的生产设备将在国内和亚洲地区生产用于地板、建筑和汽车行业用材料。此外，随着对洁净空气和水的需求升级，工厂将会提供一系列的纺织技术方案来解决在空气和水过滤方面的问题。

首席执行官Brett Simpson说，“我们的战略是生产符合我们核心市场的相关产品，为我们的客户提供世界一流的服务及缩短交货期。中国和亚太地区是Low&Bonar集团未来的核心市场之一。要实现产品的高质量、高性能，对生产工艺的全面控制非常关键。”

“有了以本地和全球客户为中心的团队和强大的服务网站，可以优化我们在生产、物流、管理的流程，为我们的客户带来效益。通过减少从欧美出售到亚洲的产品运输，可以减少对环境的影响。”

产品大多数销往中国国内市场，其余销往亚太地区。除此之外，工厂也希望在未来五年Colback非织造布能满足全球需求量。工厂占地面积29600平方米，位于常州国家高新区，是拥有纺织历史的中国经济发展地区。

在地板材料行业，Colback非织造布被广泛地应用于地毯的基布以及高档墙纸、墙毯及脚踏垫中。Colback的尺寸稳定性和热稳定性使地毯在加工和安装的过程中避免弯曲，特别是在花纹循环式的地毯中，这种弯曲现象更容易出现。

中国区域经理Alex Xu说：“Colback非织造布在非织造布市场上是独一无二的，它使用两步法制备且不易复制。这使我们有很大的优势给客户提供独特的产品，有助于我们获得市场份额。我们在上海的团队将提供销售和技术支持给我们的中国客户以及亚太地区的国际客户。”

(资料来源:“www.nonwovens-industry.com”)

一家新的非织造布生产厂在美国的印第安纳州设立

Carver无纺布将在七月投入运营，应用于休闲车、汽车和建筑产品行业

Carver非织造技术宣布将在美国印第安纳州的Freemont建一个新工厂。这个新工厂是利用位于Depot东大街706号空置的厂房。Carver的工厂将于2016年7月投入运营，主要生产多种纤维类型包括玻璃纤维、碳纤维、韧皮纤维及各类合成纤维产品。

该生产线拥有最先进的技术，最新的发展技术包括开松、混合、梳理、交叉铺网、成网和最后在针刺机上的“Hyper Punch”技术。

Carver的核心设计和技术旨在提高产品质量，包括纤维混合、开松不匀，产品重量分布不匀和生产线的功能方面。这是满足产品轻量化解决方案性能需求方面的关键，如适用于汽车、房车、建筑行业和办公系统的产品。

特定的功能是其单层纤网结构，将两种不

行业信息

同的纤网结构复合成单层纤网。双层纤维结构可以使Carver采用多种不同的材料类型制备产品，满足具体应用的要求，同时保持成本平衡。

除了双层纤网复合，Caver也可以满足天然纤维复合材料产品的质量要求。具体讲，Caver的生产线解决了天然纤维应用到汽车领域的相关难题。纤维成网试验通过率达到90%以上。

Caver技术可以制备多种混合纤维和纤维类型，克重范围在300g/m^2-2400g/m^2。配比范围从80% / 20%到20% / 80%，测试表明没有质量或性能损失。

此外，Caver选择了从开包到包装全自动化的生产线。同时结合所有的设计及工艺系统，使生产得到全面监控，产品一致性高，质量好。
(资料来源: "www.nonwovens-industry.com")

东丽在亚洲的进展

这家韩国公司在中国有4条生产线，在印度尼西亚有2条生产线，致力于成为亚洲最大的非织造布生产商

在成为亚洲最大的非织造布生产商的道路中，韩国的东丽先进材料公司曾是东丽和韩国(株)世韩的合资企业，致力于满足亚洲消费者的需求。自2006年起，该公司减少了在韩国的投资，而在中国和印度尼西亚增加了新的生产线，使其成为亚洲最大的纺粘法非织造布供应商之一。

出口部经理Evan Lee说，经过与重要客户讨论在哪里可以找到最好商机，我们决定在中国和印度尼西亚投资。

"通过与我们的客户交谈，我们决定在纺粘业务上投资，在中国和印度尼西亚拓展业务，成为亚洲非织造布业务的主要供应商，"他解释道，"虽然由于过度供应问题，激烈的竞争和价格起伏的压力，许多非织造布制造商经历艰难时期，但是我们一直在寻找新的突破的机会。"

由于对市场的了解和一些信心，促使东丽积极的扩张市场，这一战略初显成效。2014年，公司的销售额增长了18%，达到3.42亿美元，高于平均水平的增长，这得益于其在中国和印度尼西亚的运营。同时，在韩国的销售额同比增长仅在个位数。

东丽于2006年在南通成立中国业务，并在2010年和2012年增加了第二和第三条生产线。第四条生产线于2015年完成，该地的总生产量高达77000吨，据说是中国最大的非织造布生产商。

Lee说: "中国是全球卫生市场发展最快的国家之一，这一趋势使得纺粘生产商扩大产能和新生产商的进入，造成纺粘市场供过于求的局面，但从好的一面来看，独生子女政策的变化和高端市场的需求增加，将为我们扩大中国市场的业务带来新机遇。"

东丽预测，由于人们生活方式的改善，一次性尿片的市场将从2012年的140亿件增长到2020年的380亿件。这种趋势将影响主要的卫生产品生产商，扩大其现有设施和在新的地区创建新设施。

"我们已经与全球和本地的尿片制造商建立了长期稳定的商业伙伴关系，"Lee说。"我们的目标是建立一个供应链，来满足我们遍及亚洲的客户需求，"Lee补充道。"当我们考虑扩大业务时，我们倾听客户的业务计划，目的是找到共同成长的方式。我们不仅为全球制造商还为当地客户提供各种业务渠道，所以每一个客户都能给我们企业一个机会。"

在亚洲其它地区，东丽已经宣布在印尼增加第二条生产线，仅18个月后，该线在2013年6月开始运行。这条新生产线将于2016年9月产能翻番。

"印度尼西亚是东南亚国家中人口最多的国家，具有很强的成长力，尤其是在卫生用品市场。此外，这里拥有良好的区域位置，可以使我们的业务扩展到南亚。因此，我们相信这是我们的亚洲扩张战略中非常成功的一部分。"

东丽过去曾表示，对其它亚洲国家的扩展将是其扩张战略的下一步，但高管们在细节上谨慎，称只有保证市场需求和客户增长的前提下，他们才会进一步推动业务扩张。

行业信息

德国科德宝公司促进依沃珑轻质面料的发展

“对我们而言，中国和印度尼西亚市场仍然非常具有吸引力，所以我们愿意把更多的精力投放在这个市场。但是我们也一直在考虑在其它地区寻求新机会。” Lee说。
(资料来源: “www.nonwovens-industry.com”)

Fitesa公司宣布在美国南卡州辛普森维尔的工厂安装最先进的纺熔生产线

我们于2015年8月披露消息称欧洲、美国和南美洲将扩充产能，接着Fitesa公司证实其将在美国南卡辛普森维尔的工厂安装新的生产设备。这条最先进的纺熔生产线额定年产能24000吨，并将于2017年下半年开始商业运作。

（>>>下转37页）

德国科德宝公司促进依沃珑应用于轻质面料擦巾的发展

克重低至30g/m^{2}的基布十分适用于各种应用需求

科德宝公司也巩固了依沃珑在轻工业擦巾市场中的地位。

依沃珑面料的原创设计思路是一种具有优异性能的耐久性织物，这种厚重型擦拭品风靡了十年之久，而且使用上百次的洗涤也不会影响其牢固性。而近阶段的发展，使德国科德宝公司开发了轻质依沃珑面料，其克重低至30g/m^2-1.5g/m^2，比传统轻质擦巾还要轻1.5到2倍。除此以外，依沃珑面料还推出了多维结构设计模式，包括平面结构、网状结构和新型三维结构，能够满足消费者各种各样的需求。

“该模式在消费市场中运营良好，然而工业市场上越来越需要一些具有高清洁性能的新型产品，依沃珑面料也适合做这类产品。” 依沃珑业务部门经理Jean-François Kerhault说。

德国科德宝公司在2016年美国波士顿非织造布展上推广依沃珑面料，该产品的三维版本获得最佳成就奖。许多客户需要预浸渍的依沃珑基布，越来越多的细分产业市场需要特定轻质湿巾，其中包括汽车工业和航空、航天工业等高科技领域。由于该产品具有超细纤维结构，浸渍使产品稳定且寿命长，确保产品在吸湿和放湿的过程中保持稳定。此外，这种复合超细纤维依沃珑面料与很多洗涤液、溶剂和异丙醇都兼容。Kerhault补充说:“依沃珑面料与一些其它竞争材料不同，耐过氧化物类消毒剂。可以使用在广泛的清洗化学试剂方面，这类材料给用户带来了很大的便利。”
(资料来源: “www.nonwovens-industry.com”)

美国Hospeco公司扩大其食品行业用擦拭产品生产线

SaniWorks EPS擦拭产品在清洁物体时可不断释放出洗涤液到擦拭的表面以确保适当的表面消毒

位于北美的Hospeco公司生产清洁擦拭产品和个人护理产品，宣称要扩大SaniWorks食品用擦拭产品生产线，增加新型EPS（增加消毒性能）。SaniWorks EPS擦拭产品耐用，可用于多种场合，并能与各种化合物和含氯消毒剂兼容。

与许多其它擦拭产品和一次性湿巾不同，Hospeco公司的EPS擦拭产品在清洁物体时可不断释放出消毒剂，以确保擦拭表面清洗及达到适当表面消毒，故而可预防交叉感染。这款EPS擦拭产品可有效地抑制消毒剂中的活性成分，因而可以使瓶内的洗涤液与擦拭产品相互接触并释放适量的洗涤液到擦拭产品表面。

SaniWorks生产线所生产的食品用擦拭产品有四种主要类别。这些产品具有不同的性能，耐久性、使用时间和尺寸，可满足不同场合需要，可根据用户特定的洗涤剂和耐消毒剂的需求，并满足设备所需的使用成本。

除了这款新型EPS擦拭产品之外，这四类产品中还包括高档抗菌擦拭产品（这种抗菌处理可有效抑制擦拭产品中异味细菌的生长。擦拭产品不仅可重复使用，而且价格低廉）、酒吧用擦拭产品（新型擦拭产品比传统擦拭产品和亚麻擦拭产品拥有更佳的清洁效果和更持久的使用寿命，清洗过后，还可重复使用）和优质的柜台擦拭产品（短期使用的理想选择）。

颜色编码技术为预防交叉污染起着重要的作用，Hospeco公司的SaniWorks生产线含有颜色编码技术。作为危害分析关键控制点体系（HACCP）的一部分，设备可指定相应颜色编码来显示各类表面的清洁。

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市场动态

柔性印刷协会（FTA）授予 ProAmpac 公司七项柔印奖

俄亥俄州辛辛那提市（2016年3月）—ProAmpac公司，全球领先的柔性包装公司，荣获柔印技术协会（FTA）2016年卓越柔印奖竞赛的七项奖项。

ProAmpac公司的Prolaminar和Legacy Cei（现在已融入prolamina）品牌荣获三个金奖，分别是用于乔治亚太平洋公司Spectrum标准92多用途纸的包装赢得了金奖；用于Norpac Natural Choice品牌多用途纸的包装及Domtar Earth Choice 30再生办公纸的包装。用于W.B. Mason Flagship 3Hole纸的包装获得了铜奖。ProAmpac的Ampac品牌获得了二个银奖，分别是李维斯A Great Pair of Jeans纸购物袋；李维斯的节假日纸购物袋；最后，还有个铜奖是Aeropostale的Coming Home Holiday Dogsled纸质购物袋。

ProAmpac的首席执行官Greg Tucker说，“我们对自己全面的高清晰柔印能力和图形部门感到非常自豪。这七个奖项更加强调了我们的承诺——优质的印刷和创新”。

据今年柔印技术协会竞赛的参与者称：“在大赛的56年历史中看到了激烈的竞争和一些最好的印刷产品。获奖者提供了生动鲜明清晰的图像，严格的注册，始终如一的样版，印刷打样，注重细节和出色的综合执行能力。”

除了ProAmpac获奖的柔印实力外，他们提供凹版印刷和一个完整的图形部门，以帮助确保每一个独特产品的最佳工艺，来彰显自己的客户品牌。

ProAmpac

ProAmpac坚守他们毫不动摇的承诺，致力于提供创新的包装解决方案及业界领先的客户服务，为多样化的全球市场提供屡获殊荣的创新。它是一个多元化的全球包装公司，在北美、欧洲和亚洲拥有超过2500名员工和18个制造中心。有关更多信息，请访问公司的网站：www.proampac.com。
(资料来源: “www.inda.org”)

一个变革的时代—Sandler公司成功的2015年

位于德国巴伐利亚施瓦岑巴赫/萨勒的非织造布生产商盛德（Sandler）无纺布公司，报告了成功的2015年，年创销售收入2.88亿欧元。盛德团队员工增至710名。施瓦岑巴赫工厂的扩张及美国新的非织造布生产基地的签约，2015年标志了盛德公司历史性新篇章的开启。

2015年，盛德公司得到了进一步发展壮大，翻开了新的一页。凭借其广泛的产品范围，盛德公司具有高水平的生产效率。非织造布的创新，施瓦岑巴赫工厂的扩张和在美国制造基地的建立，将是未来进一步发展的引擎。

可持续发展与最高性能的结合是非织造布在室内声学方面的目标。非织造布越来越多的应用于建筑和技术绝缘（声、热），以及工业建筑、汽车工业和办公室的降噪方面。它们的开孔式结构使之成为优良的隔音材料，为家里和喧闹的办公室提供安静的感受。

2015年，盛德公司与合作伙伴密切协作，为这些应用领域开发了各种非织造布。除此之外，该公司推出了自支撑结构材料非织造布用于办公室隔音用途，用作隔墙或隔音家具。

过滤领域是盛德公司极其重要的市场，并必将在这一领域中继续取得重要进展。过滤介质对我们的生活质量越来越重要，特别是在拥挤的城市地区，空气污染正在迅速成为一个问题。在空气调节系统中他们提供呼吸的洁净空气，用于家居和工业建筑，或用于车辆中的客舱空气过滤器。盛德公司为这些应用领域提供耐用、高效的过滤非织造布。然而在2015年，室内空气质量的关键词不仅限于处理公共场所的空气质量，一个新的过滤介质能效规范正在行业中形成。盛德公司提供合纤过滤介质已经满足这些新的要求。他们在过滤设备的运行过程中有助于降低能源消耗。

克服纺织工程限制——结合其它材料，非织造布可以实现这一目标。2015年，盛德公司推出了一款非织造布和纤维增强塑料的复合材料用于汽车行业。该复合材料隔离发动机和驱动噪声以及热，它们既结实耐用，同时又轻量化。应用于车身底板，车头衬里甚至车体部位，他们支持的轻量化结构，有助于减少燃料。

市场动态

在施瓦岑巴赫生产基地，公司的持续发展也非常显著：一个新的1700万欧元的生产设施正在形成，于2016年中安装一条新生产线，为卫生用非织造布和擦拭基材扩大生产能力。总计，盛德公司将为这一新的生产设施投资4300万欧元。

盛德公司的员工也在稳步增长，因为员工增长需要空间，新的行政大楼也在2015年开始建设。盛德公司的辅助装备将应用于该大楼的室内设计，将有助于创造一个安静、舒适的工作环境。盛德公司员工将在2016年上半年搬迁到新大楼。

盛德公司团队的一些成员也将在2016年搬迁，但规模完全不同，他们将接受盛德公司历史上空前的挑战：在夏天，他们将进驻美国佩里，格鲁吉亚的盛德非织造布公司，与美国新同事一起工作。确切地说，这一步骤是迈向新天地的启航，让盛德公司非织造布成为“美国制造”——更接近美国客户。

总而言之，2016年这个家族经营企业面临诸多挑战。然而，710名员工组成的“盛德家庭”已做好不负厚望的准备，他们拥有各自的经验，专业的技能及各项工作的新思路，了解认同公司并富有进取心。持续专业化发展是成功的一个要素，这就是盛德公司在现代化培训设施和专业培训项目上不断投资的原因。

就是这样一个庞大的团队，造就了公司成功的基础，现在进一步的工作是美国基地的建设，领导能力是个至关重要的课题。盛德公司强调落实各自履行工作的主体责任，尤其注重强调开诚布公的沟通和思想交流——在管理人员和工作人员，公司的不同部门之间，以及在德国和美国的工厂之间。这一理念通过初级管理发展课程传授给公司的新员工。这仅是盛德提出的一个理念，确定盛德团队未来的一个理念。
(资料来源: “www.inda.org”)

给婴儿最好的

尿裤生产商在创新中磨练，引领尿裤产品向更薄、更柔软、更舒适发展

2015年，消费者继续为他们的婴儿寻求更薄、更柔软、防漏效果更好的尿裤，同时厂家已经能够达到要求。由于非织造布制造商的创新，尿裤制造商已经能够通过使用更薄的尿裤组分来降低产品的总重量，同时可以让表层与底层材料犹如丝滑般柔软。此外更好的利用弹性材料是产品舒适贴合防止侧漏，同时新的芯层技术可以使得液体在芯层中间更好的分散。

过去的一年已经证明，这些创新对于市场增长是极其关键的，即使是在北美和欧洲这样高度饱和的市场。事实上，在北美经历2014年第四季度的销售低迷后，“好奇”尿裤的制造商金佰利公司宣布将调整其战略，便于更好地与它头号竞争对手宝洁竞争，宝洁是帮宝适、乐肤适的制造商。一年前，金佰利的董事长兼CEO托马斯•法尔克表示，公司将在“创新、市场、相关的核心竞争力方面”进行投资，以提高公司的2015年业绩。

2015年第三季度金佰利的尿裤销量快速推进，据报告显示，相比于2014年跌幅达到两位数相比，在2015年好奇尿裤的销量有了较低两位数的增加。“我们的第二季度新的Snug & Dry主流尿裤东山再起，已经走上正轨，我受到了好奇销量正在改善的鼓舞。”法尔克在10月公司第三季度的电话会议上说。

金佰利也看到了新兴市场的成功。在东欧，对于婴儿尿裤的销售额增长了45％左右；在中国，婴儿尿裤销售额增长了15％，同时销量增长依然强劲；在巴西，尽管经济环境充满挑战，尿裤的销售额也上涨了5％。

去年，宝洁公司也注重创新，升级美国本土的帮宝适Cruisers和Swaddlers的生产线。两者都配备了额外的液体吸收通道，让婴儿保持更加的干爽。升级后的尿裤在吸收芯层具备三条液体吸收通道，这三条吸收通道将使得液体分配更加均匀，同时有效防止吸收液体后尿布下垂的情况发生。但是帮宝适Cruisers设计的改变，材料保持不变。另一方面，Swaddlers尿裤生产线现在采用一款更软的包覆面层。

“在新款帮宝适Cruisers中额外的增加一条液体吸收通道，这个方法解决了我们研究婴儿和他们的照顾者多年最关心的一个问题：尿裤吸湿后下垂，”Heather Valento（宝洁公司婴儿与女性护理业务信息副总

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监）说，“普通尿裤有一个非结构化的吸收芯层；当液体积累在中间时，它增重将使得尿布向下和同时发生膨胀，这将导致尿布下垂。均匀分布在吸收材料的通道是尿裤的重大突破，这个突破包括如何制造，如何均匀分散液体以及如何减少尿裤的下垂。”

十月份，在宝洁公司的2016第一季度财政电话会议上，首席财务官乔恩•默勒表示，坚实的创新、与消费者的沟通、试验项目和一个强大的线上销售使得在2015年，美国的宝洁公司婴儿护理部门的尿布份额稳健增长了1.5个百分点，预计在2016年第一季度的财政收入增长0.5个百分点。该公司预计，最新升级后的帮宝适可以促进这种强劲势头的保持。

在其它市场，Moeller指出美国市场以外的婴儿护理业务比较孱弱。为扭转这一局面，宝洁公司“加速优质的创新”，例如，腰贴尿裤和拉拉裤，更好地应对市场上的高端竞争。他说：“我们正在强化我们的销售资源和筹划婴童店，我们正努力改善我们的市场切入点，为新妈妈们提供并传达关于帮宝适的更高认知和体验。”

位于佛蒙特州伯灵顿，具环保意识的品牌Seventh Generation（第七代）也对自己的婴儿尿裤做出了一些升级与改进。在Free & Clear这个尿裤的内层做了一些改进，使它摸起来具有婴儿皮肤般的手感。根据第七代的品牌经理Daron Byerly所说，公司已经对尿裤从婴儿的皮肤表面吸收并锁住水分做了改进，让婴儿保证持续的干爽。第七代也改进了它旗下Free & Clear尿裤的吸收液体的能力。“我们将优秀的吸液能力与腿部周围紧密且舒适的贴合相结合，同时我们的搭扣实现可调节的、多次使用，为我们的客户提供伸缩自如且安心的尿裤。”他说。

如同商店货架上的其它尿裤以超柔材料做亮点一样，第七代在2014年推出了自己的柔软型尿裤生产线。新的“Touch of Cloth”尿裤的特点就是使用未漂白的棉花作为底面。

“我们发现未漂白的棉花具有令人难以置信的柔软触感，”Byerly说，“你会发现这是你在这个领域发现的第一款同时也是唯一一款纯天然且无化学加工棉纤维制成的尿裤。”他同时也表示，通常那些尿裤的底面用石化塑料制成的，而Touch of Cloth的底面全部是以植物性原料制成。

在欧洲，瑞典的卫材公司SCA（爱生雅）也在高端尿裤方面取得进展。在10月，公司推出了Libero Touch，采用一种新的柔软且韧性的材料，这种材料使得婴儿的腰部、臀部和腿部在移动时的贴合性更好，同时还可以防止泄漏，在很长的一段时间内保证婴儿的干爽。爱生雅说该尿布的表面层极其柔软，外层的包覆材料棉柔、透气。

“在生命的最初的几年，婴儿几乎每天24小时需要穿尿裤，这意味着舒适性和材料的质量是至关重要的，”Libero创新中心的全球技术创新经理Maria Holmberg说，“为了给婴儿提供最舒适的关怀，所有的材料和细节都被仔细挑选过。”

尿裤行业的顾问Pricie Hanna，同时也是Price Hanna Consultants的经营合伙人，他表示，高端的尿裤向柔软方面开发的趋势，在这一两年的时间内迈向了新的高度。“我认为有大量的证据显示消费者已经开始真正认识到柔软与缓冲等带来的美好。”她说。

营销商私有品牌在行动

在11月初，拥有自有品牌及零售商品牌的比利时的一家一次性卫生材料产品的制造商Ontex，收购了Grupo P.I. Mabe（就是我们所知道的Mabesa）公司100%的股份，它是墨西哥主要的一次性卫生材料制造商。Mabesa总部在Puebla（普埃布拉）的公司年销售额达到了4亿欧元（约合4.34亿美元）。其中，60%的量在墨西哥（全球第五大个人护理市场）。其余是出口，主要出口到美洲国家，Mabesa在美国东南部的市场已站稳脚跟。Ontex进入这些新市场，以及建立一个新的美洲分公司将推动整个集团的发展，Ontex高管说。

在墨西哥，Mabesa提供一个完整的产品组合，包括婴儿尿裤、女性卫生用品及成人失禁产品，它已成为了个人护理大类产品的第二大经营者，其婴儿尿裤处在第

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二的地位。Mabesa的婴儿尿裤品牌包括Chicolastic和BBtips，此外该公司还提供诸多销售商私有品牌。

“我本来正在等待Ontex收购Hypermarcas公司进入巴西市场，”行业顾问Carlos Richer说，“相反却决定收购了Mabesa，在我看来，这是一个更好的战略决策。Mabesa在本土和国际上已经成长起来了，Mabesa的自主品牌在墨西哥已取得了很大的市场份额，尤其是帮宝适在墨西哥去年消失后。”

Hanna觉得这次收购是否会在北部边境创建另一个强大的营销商私有品牌竞争对手。许多环境友好型的尿裤品牌由美国营销，Mabesa根据合同生产，已经形成了这一细分市场供应特色。她提示说，Ontex将很可能成为北美一个主要的销售商私有品牌供应商，现在该公司在墨西哥已经获得了一家卫材工厂，这将使得在美国西南部零售的销售商私有品牌更具成本竞争力。

与此同时，比利时另一家尿裤的制造商Drylock，无绒毛浆尿裤的发明商，该公司也持续将创新的重心放在销售商私有品牌的领域。该企业生产尿布仅仅只有三年多的时间，提供一款低价位，低绒毛浆产品以及另一款超薄无绒毛浆的高端尿裤，二款尿裤均以“魔术”命名。

在2015年，Drylock推出了第二代无绒毛浆尿裤，对第一代产品做了改进，该尿裤的芯层使用了一种能快速吸收液体的原料。在接下来几个月左右，Drylock将推出其第三代无绒毛尿裤，Drylock的创始人兼CEO，Bart Van Malderen 先生称，这款尿裤为“textile fit”。该尿裤的表面层与底层都更加柔软，同时它的芯层又再一次进行了升级。他表示Drylock将首次推出多彩尿裤的概念，采用印有色彩的表面层。

“我们看到并积极投入的销售商私有品牌产品变得更薄、更柔软，”Van Malderen解释到，“这就是尿裤发展的方向。对于我们来说最大的事情就是生产出了无绒毛浆的尿裤，我们的创新就在于我们现在使用更薄、更柔软的材料。”

Magics尿裤目前在欧洲所有的国家都可以买到，同时这款产品已开始销往中国。今年初，Van Malderen表示Magics将开始通过互联网在美国销售。

位于美国佐治亚州达拉斯的Bemax公司在2012年开始出口并提供销售商私有品牌的一次性婴儿尿裤，它宣布在9月份推出一条销售商私有品牌的生产线，用于生产一次性尿裤和擦拭巾。在Mother’s Hugs这个品牌的带动下，尿裤和擦拭巾的销售将通过Bemax现有批发分销渠道、在欧洲的零售商和新兴的非洲市场。消费者也可以从Bemax的电子商务网上在线购买。第一阶段推出的产品将在今年第一季度开始。

“新兴市场，特别是非洲，还没得到充分挖掘。”Bemax的CEO Taiwo Aimasiko说，“我们看到了这些市场的潜力，特别是越来越多的人现在正使用尿裤。新出生人口增加，使用传统尿裤的人减少，这为我们创造了更多的机遇。Bemax的产品有很好的定位，低价却极具性价比。目前在非洲本土几乎没有一次性尿裤的厂家，他们的产品主要依赖于进口。”

Aimasiko补充说，销售商自有品牌为一次性尿裤消费者提供更多的选择，同时降低售价。随着尿裤在非洲新兴市场，特别是在主要城市以外地区的普及，公司预期未来这一趋势将持续。

尿裤在其它地方显露

在很多新兴的市场，已经为尿裤生产厂家开辟了机遇，这些地区市渗透率、出生率高，一次性消费产品收益正在成长。

位于孟买的诺贝尔卫生有限公司（NHL）在2000年开启了成人尿裤的制造，凭借它的Teddyy品牌婴儿尿裤在印度市场赢得垂青。NHL公司的创始人兼董事长Kamal Johari称，Teddyy是印度最大的婴儿尿裤品牌。

根据欧睿信息咨询公司的市场追踪调查，在2014年，仅在印度，尿布及尿裤的零售销售额增长了38%。

去年二月份，NHL公司从增长型私募股本投资基金获得了1000万美元的投资。在投

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资的时候，泛亚洲投资的总经理Miranda Tang说:“正在改变的生活方式，不断变化的社会习惯和良好人口结构，外加尿裤产品的低市场渗透率，已经使尿裤成为印度发展最快的快速消费品类别之一。泛亚洲投资公司的目的是帮助NHL公司扩大其经营规模，增强其品牌，为占领这一潜在的指数式成长空间做准备。”

尽管印度的婴儿尿裤市场在持续的增长中，并有希望按照这个模式继续发展下去，Johari称，现阶段它依旧比预期的发展速度要慢。

同时在三月份，爱生雅在印度开了其首家生产工厂，投资1.5亿瑞朗（折合1760万美元）。该公司位于印度中心的马哈拉施特拉邦的浦那。在印度市场，其生产的婴儿尿裤纳入丽贝乐Libero和多康Tork品牌。在就职典礼上，爱生雅的总裁兼CEO Magnus Groth说：“印度卫生产品的低市场渗透率和巨大的人口数量，为未来的增长提供了潜力。在浦那的工厂将使我们能够进一步利用在印度的生长潜力，这一投资符合爱生雅进军新兴市场的战略。”

在浦那工厂开工之前，爱生雅在印度推出了一系列重要的促销活动，Groth称，2014年爱生雅团队在印度开启了它最大的信息与教育活动，涉及2300名医生、5000个医院以及诊所、1200万母亲以及婴儿。印度是世界上人口第二大国。

在亚洲其它地区，爱生雅于十月宣布了和维达国际控股有限公司“加强合作”。将东南亚、台湾及韩国的业务整合进入维达。爱生雅是维达的大股东，维达也是中国最大的卫生产品公司。

作为合同的一部分，维达获得了独家的市场许可证，可以在东南亚、台湾和韩国售卖爱生雅的丽贝乐Libero品牌婴儿尿裤，除此之外，还有爱生雅旗下的其它品牌，包括添宁Tena（尿失禁产品），多康Tork（旅行用卫生纸），得宝Tempo（日常用卫生纸）和轻曲线Libresse（女性护理）。作为合作的一部分，维达将具有在这些亚洲市场销售这些品牌的权利。此外，维达也将获得了这些品牌，Drypers、包大人Dr.P、嘘嘘乐Sealer、Prokids、EQ Dry和Control Plus。爱生雅宣称，它将继续提供这些业务的创新和技术支持。

Groth说:“亚洲是爱生雅的重要增长市场，它具有众多的人口基数，而卫生用品渗透率却很低，这样的交易会增强爱生雅和维达之间的合作，使我们能够进一步利用我们的优势，建立一个领先的亚洲卫生业务。”

订购和折扣

虽然一次性尿裤为今天的爸爸妈妈提供了实质性的便利，但是新出现的电子商务以及订购服务已经成为缺乏时间的爸妈的新购物模式。在这一领域最成功者之一就是“亚马逊妈妈计划”。一个亚马逊Prime会员项目，父母在亚马逊网站上订购尿裤的时候，可以享受20%的折扣。一旦签署这个协议，亚马逊会根据客户的选择，每月或每两月一次等等，自动邮寄客户需要的尿裤。Target（美国零售巨头）也加入了订购与打折的潮流，为预定尿裤的客户自动邮寄并给予5%的折扣。

Richer说:“订购模式是一种趋势并且会保持快速的增长，他们不仅跟踪每个顾客，建议订购数量和改变尺寸，他们同时也掌控了如何让顾客开心并且充满激情的艺术。会员是他们最好的推进者，他们还很好的利用他们的反馈，在品牌和消费者之间提供一个强大的沟通渠道。”

有关这些服务，Hanna补充说:“这是一个不断增长的全球性现象，由方便快捷而引发，免费配送，并且很容易可以确认自己获得了最好的服务，因为在网上，很容易对比各种价格。”还有一个行业相关的问题，她指出，如果零售市场份额的统计只跟踪在实体零售商店销售，不包括网上销售的零售店，那么这些在线订购将会造成市场统计份额的问题。她说:“如果尿裤生产厂家当他们把尿裤卖给沃尔玛、Target等具有很强的网上销售的大的零售商时，他们将不知道其中有多少是通过网上在线进行销售的，有多少是为那些实体店铺里销售的。所以统计数据可能会产生误导，因为它可能低估了市场规模，并可能无法准确反映尿裤的市场份额在所有分销渠道的地位。真实的市场增长率是多少，品牌的市场份额和销售商私有品牌市场份额是多少。”

(资料来源:“www.nonwovens-industry.com”)

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Campen公司和Autefa公司联合开发

Campen公司与Autefa公司联合开发

各家公司将联合开发干法纸、干法纸/水刺生产线

Autefa公司和Campen Machinery公司合作来开发干法纸和水刺 / 干法纸非织造产品的相关设备，由Campen开发的新型干法纸水刺工艺(HLAL)可生产可冲散和不可冲散，可分散的和可生物降解的非织造产品。

作为AUTEFA公司兼CAMPEN Machinery公司的首席执行官André Imhof解释说：“通过这两家公司，我们建立了牢固的合作关系。其中每家公司都研发出了新型节能技术，并且合力开发了一条完整的可冲散湿巾类产品生产线。将所有科研成果联合起来，从原料到非织造成品，我们都提供了先进的生产技术。”

Autefa公司研发出了水刺技术、烘干和粉体散射技术以及梳理和梳理喂入技术。对于水刺工艺，Autefa公司也开发出了一种可节能30%的水刺生产线，是一条完整的带有新型SQ-V方状滚筒烘箱的生产线。

CAMPEN Machinery公司专业于木浆纤维和其它纤维成网。通过纤维配置、浆粕粉碎以及气流成网技术，压花热粘合，干法纸和干法纸水刺产品的成卷技术。
(资料来源:“www.nonwovens-industry.com”)

Mobi-Air公司获得了新加坡能力发展津贴

公司在生产自动化方面获得了新加坡能力发展津贴

生产组合插头式空气处理系统的新加坡Mobi-Air公司，收到了一笔额外的能力发展津贴(CDG)。其用途是在某种程度上，为了支持公司空气处理系统的批量生产，同时将公司的先进技术提前引向商品市场。

据Mobi-Air公司的财务经理Jessica Xing介绍，公司的大部分产品将在新加坡完全实现自动化生产，关键组成配件的采购仍然从越南、马来西亚和德国购得。

Mobi-Air公司的总经理Martin Scaife补充说：“我们很高兴HQ项目能够在新加坡运行，并且希望能尽快完成项目的最后一个自动化阶段。我们制成的空气处理系统只有一个插头，很灵活，所有成人和孩子都具有使用这种仪器的能力。同时这种有限元结构设计也非常适用于整个卫生行业。更重要的是，我们已经在空气处理技术的工艺过程中建立了一个新的标准。并且该仪器元件数量少、自动组装简单，用户能根据说明书在0-80KCMH的区间上进行调节。

由这一举措，Mobi-Air公司将要完成2016年植树计划以抵消产品在运作周期中所产生的碳排放，包括其它自动化阶段。

这种新型自动化系统采用了内部开发自动化技术与多用途6轴机器人相结合，预计将于2016年晚些时候推向市场。
(资料来源:“www.nonwovens-industry.com”)

德国特吕茨施勒公司的人造纤维业务

奥瑞康公司将业务拓展到人造纤维领域

特吕茨施勒非织造布有限公司计划将其短纤技术卖给奥瑞康公司的人造纤维领域，并将工作重心转移到非织造设备和长丝设备业务中。

公司的总经理兼首席执行官Dr. Georg Reinhold声明：“随着公司在德国埃格尔斯巴赫的转型，我们将集中我们的能力和技能在我们非织造材料客户的关键项目中。我们市场创新的时间将会缩短，而我们全球服务的理念将会进一步加强。”他还称：“特吕茨施勒这个名称是技术创新的代表，而且还会受到高层次用户的关注。在这个方面，我们将制定新的行业标准。”生产地毯用纱和工业用丝的纺纱厂不会受到这一变化的影响。奥瑞康公司将会把这种短纤技术引入到奥瑞康纽马格公司。
(资料来源:“www.nonwovens-industry.com”)

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Fitesa

在全球卫生用品市场中，Fitesa公司是非织造布设计和制造的领先者。其生产基地遍布全球，Fitesa采用各种不同的非织造布生产技术，以满足客户在服务、质量和灵活性方面的要求。Fitesa专注于创新产品的开发，既能独立完成也可以与客户协作。
(资料来源:“www.inda.org”)

市场趋势

电池2020–未来电动车和固定设备的蓄电池材料

HiPoLiT德国高功率锂技术联盟正在研究改善能量密度的快速充电锂能源存储系统。BMBF德国联邦教育与研究部正在资助该项目，项目已于2016年1月启动。该项目的另一个主要问题是降低电池生产成本。这将通过减少相互连接电池单元的数量以及使用高电压的阴极和较大尺寸的电池单元。

德国联盟发挥各自优势

位于德国魏因海姆的科德宝 Vliesstoffe SE & Co. KG公司正在协调该联盟项目。作为该项目的一部分，该公司正在开发新的柔韧高温和高性能的陶瓷电池隔板。莫斯堡的Johnson Matthey电池材料有限公司将采用特殊优化的阳极和创新的高压阴极粉末以促进其应用。这些组件连同明斯特威斯特威廉斯大学的电池研究中心（明斯特电化学能源技术）研究的新配方电解液将会在位于伊策霍的弗劳恩霍夫硅技术研究所组装成电池单元的试样。完成之后，位于伊策霍电池制造商Iiacon公司，会将这个成果开发转化为实用的大型电池单元。这些单元将会由位于卡尔斯坦的Batterie-Montage-Zentrum公司集成为功能性电池系统，随后由位于吉尔兴的Torqeedo公司安装在电动船上进行实际测试，Torqeedo公司是电动船发动机的全球领先供应商。

在2016年1月1日和2016年12月31日间，德国联邦教育与研究部资助德国高功率锂技术联盟项目约两百万欧元。

关于HiPoLiT – 高功率锂离子技术

工业企业和应用型研究机构联合的高功率锂离子技术联盟，通过改进快速充电能力和改善能量密度和生产成本，来支持电动车的发展。

该联盟包括Batterie-Montage-Zentrum公司，位于卡尔斯坦的弗劳恩霍夫硅技术研究所，位于伊策霍的科德宝 Vliesstoffe SE & Co. KG公司，位于魏因海姆的Johnson Matthey电池材料有限公司，位于莫斯堡的Liacon公司，伊策霍的MEET (明斯特电化学能源技术) 明斯特威斯特威廉斯大学的电池研究中心和位于吉尔兴的Torqeedo公司。科德宝Vliesstoffe公司领导这一项目。

(资料来源: “www.inda.org”)

ACC提升热熔胶复合能力

胶粘剂叠层复合提升至124英吋

2016年2月，位于威斯康星绿湾的American Custom Converting（ACC）公司宣布已从ITW公司引入一条124英吋的热熔挤出生产线。该新增的设备能方便的复合各种类型的基材，包括纸、非织造布和薄膜。新机器的粘合剂施加量适应范围从1到30gsm，并可处理各种不同类型的粘合剂。新的叠层复合线输入基材的卷装直径可达90英吋，最小工作宽度是60英吋并可适应各种芯轴的尺寸。成品卷装可以是30到59英吋不同的直径，分切宽度低至4英吋。ACC公司的Mark Kyles先生称，“这项投资朝着我们的战略计划迈出了一大步，使我们的产品更多样化，增加了提供给客户产品的附加值”。

ACC提供分切、复卷、折叠和包装、叠层复合、涂层及客户定制的后加工服务。ACC成立于1998，经营着一个90000平方英尺的工厂，坐落于威斯康星的绿湾。更多信息请致电Mark Kyles（920）370-4755。

(资料来源: “www.inda.org”)

德国Dr. Schumacher扩大个人护理湿巾计划

在旧工厂失火4年后，新的5000平方英尺的工厂开张

德国个人护理湿巾制造商Dr. Schumacher有限公司在波兰西南部的Luban建立了一个新的产品生产厂。该工厂花费1.5亿波兰兹罗提（3500万欧元）建成，占地5万平方米，拥有45条生产线。该工厂的前身是德国制造商位于Luban的工厂，该厂在被大火烧毁的4年后修建完成。

工厂位于波兰西南部下西里西亚省国家经济特区（KSSE），该区域使Dr. Schumacher的投资享有税收优惠。

特别经济区行政长官Iwona Krawczyk说：“Dr. Schumache是世界著名品牌。该项目使用的标准及技术反映了全球最新趋势。”根据Krawczyk的说法，新工厂使Dr. Schumacher成为Luban最大的投资商。

根据波兰政府2013年作出的决定，波兰特别行政区将持续运行直到2026年结束。为了回报在项目投资时享受到的税收优惠待

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遇，在这些区域建造生产工厂的公司必须保证工厂维持与当地政府达成协议的劳动力水平。

新工厂目前有员工660名，公司代表对当地新闻网站Eluban.pl说，公司计划在Luban另外新增90个岗位。

该德国公司的共有人Dierk Schumacher，同样也出席了去年二月的官方开幕式，他说，该工厂是公司历史上最大的投资。

Schumacher说: “我们认为我们是质量的领导者。以此面向未来，我们在这个机械加工区的投资可以说是出类拔萃。作为家族企业，我们从最开始就知道我们会投资一个新工厂。”

在波兰增加产能

值得注意的是，新开张的工厂所在的厂址曾经是一个湿巾工厂，在2012年7月被烧毁。旧工厂是公司在当地的子公司Dr. Schumacher sp. z o.o.建造的，在事故发生时有411名员工在上班。如今，重建的工厂拥有45条生产线，每年能生产出1亿包湿巾，这使得制造商既增加了劳动力又扩大了产能。

根据Dr. Schumacher的预期，与公司在Luban之前的生产设备相比，新公司将使得公司增加五倍的产能。

Dr. Schumacher称该公司是欧洲领先的公司之一，致力于发展以及生产消毒水、卫生及个人护理产品，以及用在婴儿护理、化妆、个人卫生的湿巾及其它家用产品。德国公司每年大约制造2亿包湿巾，包含大约100亿即用型湿巾。这意味着波兰工厂占到公司每年总产量的50%以上。而且，根据Dr. Schumacher发布的数据显示，公司的生产能力还包含每年5700吨消毒水。

德国制造商说其生产设备能够生产用于婴儿护理领域的所有非织造产品，克重可达55gsm或更高。

Dr. Schumacher宣称，公司的目标是确保包装形式的高度多样性。根据顾客的需要，其产品范围包括常规尺寸含15-80片的压缩包装湿巾、组合包装、旅行尺寸以及迷你包装形式。

除了其它零售渠道，公司各种产品通过德国药店连锁店Rossman销售，该连锁店在波兰市场同样也拥有零售网络。除了德国及波兰，该连锁企业在捷克共和国、匈牙利、土耳其以及阿尔巴尼亚拥有零售店，从而增加了Dr. Schumacher在境外扩张的可能性。

该公司由Dr. Henning Schumacher创办，目前由创办者的两个儿子，Jens和Dierk Schumacher管理，后者目前还担任公司授权的总经理。

Dr. Schumacher所有的生产设备符合ISO 9001、13845和14001以及GMP、QAKE，EU-Öko-Audit的认证。Luban位于距离该国首都华沙约316公里的地方。

波兰积极着眼经济前景

Dr. Schumacher最新的投资表明，由于波兰位于西欧与东欧欧盟成员国之间，以及受到技术精湛，相对便宜劳动力的吸引，外国企业家正积极地扩展在波兰市场的生产。

根据从家庭、劳动及社会政策部门得到的最新数据表明，2016年2月，波兰登记的失业人口占全国总劳动力的10.3%左右。去年相同月份是11.9%，波兰的失业水平依然允许当地制造商在一个相对短的时间内为企业的生产活动招聘员工。

在过去的几年里，波兰已经吸引了越来越多外国企业的投资。欧元区的经济不景气并没有对国家的经济造成重大的影响，因为波兰是2009年欧盟成员国中唯一一个国内生产总值（GDP）增长的国家，根据世界银行的数据，与去年相比增幅为2.6%。2015年波兰GDP同比增长3.5%。

而且，一旦世界银行对该国未来经济乐观地展望得到证实，预计波兰至少保持连续两年的经济增长。

与今年相比到2017年，该国的经济将增长3.7%，正如银行发布的数据表明，波兰GDP在2018年将会有另外一个3.9%的增幅。由于邻国的立陶宛以及捷克共和国预计今年

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的GDP将会较低，这将会使波兰经济成为区域以及欧盟扩张速度最快的国家，因而会增加对潜在外国投资者的吸引力。
(资料来源: "www.nonwovens-industry.com")

在降低芯层厚度中寻求成功

平衡芯层的完整性与吸收性

随着即弃卫生产品向更薄方向的发展趋势，使生产者必须采取完全不同的方法来设计芯层。如果芯层中的绒毛浆的减少或者不使用，那么芯层的完整性就变得至关重要。芯层完整性的关键是粘合及测试芯层的完整性和吸收性。

在动态系统下，一旦绒毛浆和SAP的比例发生改变（减少绒毛浆的使用），将影响各组分的表现。为了获得最佳的表现性能，生产者和供应商必须从整体分析来看待芯层系统结构。

测试芯层性能

目前没有唯一的工业标准实验室测试方法去测试芯层的完整性或者尿布芯层中绒毛浆/SAP分配。当今使用测试的方法是从使用简单的工具到复杂的工具去获得定量到定性的结果。市场上普遍测试芯层完整性的方法是通过在尿布上直接施加一定的作用力，观察芯层的破裂，以此来测试尿布中的芯层在怎样的程度下保持在原来的位置上。这个作用力通常由机械下降，翻转、摇晃或者振动产生，同时待测试的这片尿布需要沾染上排泄物，测试在规定的时间内吸收定量的液体。

一个更全面的方法超越了以往我们认为"仅仅只有绒毛浆是湿的时候，完整的芯层才是重要的。"这意味我们需要了解穿戴者在走动时芯层的状态，因为芯层通常为一片，而芯层的破裂和移位可能在沾染到排泄物之前就已经发生了，这样将导致泄漏。

吸收芯层完整性测试方法

在湿态条件下测试芯层的分离情况，利用振动芯层去评价它的完整性。这个测试也增加了一个新的元素：预处理和测试一片干的芯层，即"干态条件下的芯层破裂"。

"破裂"意味着芯层的分离。在某个时候，当滴液第二轮渗透下去，如果粘合剂这时失效，由于湿绒毛、SAP和液体受到重力作用导致芯层分离。当使用者感到不适的时候，新增的排泄物无法被正常吸收。相反这会使液体从已经出现的分离处渗出导致泄漏。

其它测试方法包括：

芯层分离：定量试验：通常使用HIT来分析尿布。然后将污染后的芯层从一定距离落下，直至观察到芯层破裂分离。

旋转/翻滚试验：定性试验：将污染后的尿布放置在洗衣机、烘干或离心式装置中，放置网球或其它物体于尿布的内外部，振动测试，经过一段固定时间之后观察芯层的分裂程度。

振动芯层试验：定性分析：将污染后的尿布放置在设备上振动直至看到芯层破裂。

人工摇晃芯层测试：定性分析：将污染后的尿布通过人手的晃动直至看到芯层破裂。

肉眼检查芯层的粘合情况：定性分析：将污染后的尿布与芯层接触的面层剥离，观察剩下的SAP与绒毛浆。SAP与绒毛浆保留的越多说明其湿强度越高。

湿态下的剥离：定量测试证明被污染后粘合的有效性。拉伸试验机记录湿环境下的平均剥离强度。基布可能是由纸与纸、纸和无纺布、无纺布和ADL等粘合而成。

实际使用测试：使用一张完整的实际使用过程中芯层破裂的图片，这些用于观察的使用后尿布破裂芯层是来自市场测试，消费者反馈等。

吸收性能测试

虽然芯层的完整性在吸液性能的表现上起着非常重要的作用，但是完整且不破裂分离的芯层不等同于一定具有良好的吸液性能。吸液性能的表现也必须作为全面评价方法的一部分。

为了确保吸液性能，制造商应进行检测评估：

吸液时间：需要多长时间液体可以被芯层吸收，有时候需要施加一定的压力

有效利用率：在组装成产品后，芯层的有效利用程度

再次湿润：当人体再次或多次排泄后，在一定压力的条件下芯层从皮肤上有效的锁住液体的能力

总容量：测试芯层能锁住水分的总容量

吸附：液体在芯层内转移的时间，需要结合芯层的密度

（>>>下转43页）

市场趋势

NIOSH呼吁为医护人员提供创新的个人防护装备

非织造材料可以用来救援吗?

美国国家职业安全与健康研究所（NIOSH）是美国疾病控制中心的一个部门，建立了一个令生产个人防护装备（PPE），包括手术衣、隔离服、围裙、帽子等产品的非织造生产厂家感兴趣的网站。NIOSH关注近期在西非肆虐的埃博拉疫情，以及两个医护人员在救治患者的过程中被感染了埃博拉病毒。网址：www.ebolagrandchallenge.net

NIOSH对“在高温、高湿的条件下，如何延长穿着PPE的时间”这个方案特别感兴趣，因为这个条件下的埃博拉病毒繁殖特别快。然而根据该机构显示，西非的医护人员报告中提到，由于周围湿热环境的缘故，穿PPE的时间每次只能维持40分钟，而事实上所有医护装备是适用于空调场所的。NIOSH报告中“PPE的不舒适是一种常见的抱怨，同时也对医护人员造成额外的负担。”

去年末，在全球健康安全议程峰会，奥巴马总统就这个问题的重要性直接发表讲话：“今天，我很高兴地宣布，一项新的努力来帮助医护人员一起应对类似埃博拉病毒的疾病。正如你们许多人都知道的第一手资料，卫生工作者穿的防护服，可以热到令人难以置信，特别在非洲那种湿热的环境中。所以今天，我们向发明者发出挑战，让世界企业家和企业为我们的医护人员设计更好具有保护措施的解决方案。有了你们的设计，我们将让它们变成现实，并且由我们支付费用。我们的目标是需要在几个月的时间内得到这种具有更好保护措施的防护服，去帮助现在那些在西非的医护人员。我有信心我们能做到这一切。”

在提取了这些建议后，NIOSH与其他疾病预防控制中心办公室一起与美国国际开发署、白宫科技厅、美国国防部等合作，揭开了为“抗击埃博拉病毒，面临的重大挑战研发”的序幕。

根据NIOSH称，大挑战由若干提议组成，包括研发、测试和全新PPE的尺寸设计或者在现有市场上PPE进行改性处理来解决“防护性能、热应力和舒适性”这类问题。大挑战关键在于“通过社会媒体广泛征求意见”（即大众资源）和“通过公共/私有的合作关系为具有前景的设计提供资金”。

为了保护那些和埃博拉病毒做斗争的医护人员，通过大众资源（是ebolagrandchallenge.net这个网站的一部分），NIOSH试图促进研发，审核具有前景的想法，然后设置性能指标、测试和基于八项“知识优先原则”进行评估。

在过去的九个月时间里，NIOSH称其已经评估了目前在西非地区和世界其它地方所使用的PPE“总体效果”，并且他们在美国和国外已经找到一些合作伙伴去共同研发“在未来通过改良PPE结构的解决方案”。

这些努力包括的案例：

在西非和世界各地使用“暖体出汗假人”结合人体试验，评估集中常见的效果，努力去获得热应力和设计特点影响舒适性和工作性能的因素。目前的研究范围（包括“肘倾试验”和“改版后的ASTM F1671”）更好的了解穿防护服时，微生物在血液和体液中的渗透的因素；隔离服耐久性的研究；防止病毒在血液和体液中的渗透。

2013年4月11日，NIOSH在《联邦纪事》发表了“支持试验机会的通知”，呼吁自愿上交洗涤后的防护服和不可洗涤的防护服，用于国家个人防护技术实验室测试。根据NIOSH称，这些测试的目的并没有特别涉及到埃博拉病毒。相反的这些测试旨在支持ASTM努力创建为医护人员所使用隔离服的最低性能要求。

两年前，NIOSH要求在递交样品中每个品牌的一次性隔离服至少要有100件，同时对于未加工，未使用和未清洗的可重复使用隔离服，每个品牌要求至少要有200件。

该机构进一步规定那些递交上来用于测试的可重复使用的隔离服，在本次实验中必须在标签上面明确的标注出可循环利用的最大次数。这批样品的一半将在一次清洗干燥后用来测试，而剩下的另一半样品将会按照制造商所标注允许最多循环次数清洗后再进行测试。

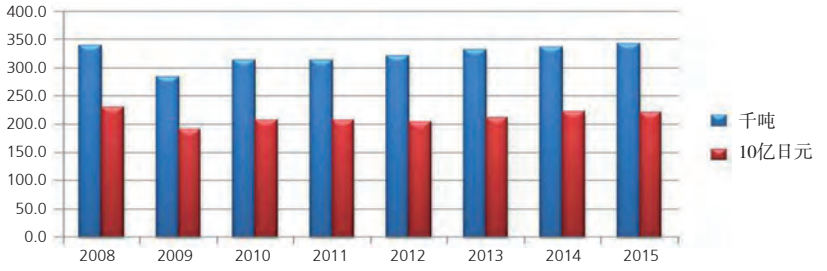
（>>>下转48页）

日本非织造材料工业

日本非织造材料产量（2008–2015）

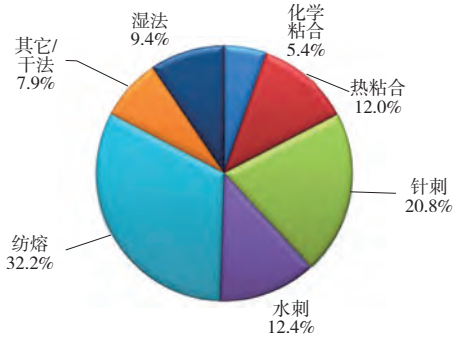
资料来源：日本经济产业省

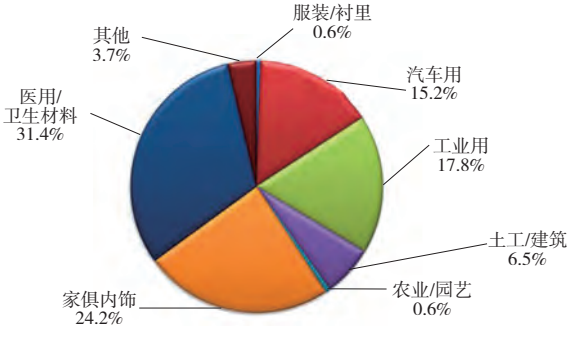
	2008	2009	2010	2011	2012	2013	2014	2015
千吨	338.4	283.4	313.4	313.0	320.9	331.5	336.3	342.0
10亿日元	228.8	191.0	206.9	205.7	203.5	210.2	221.3	220.6
日元/公斤	676	674	660	657	634	634	658	645



说明：由日本投资的海外非织造材料产量（投资比例：至少49%）
2012：165.1千吨，623亿日元；2013：196.3千吨，841日元
2014：222.5千吨，1032亿日元

按工艺和应用分类的非织造材料产量（2015）（342千吨）



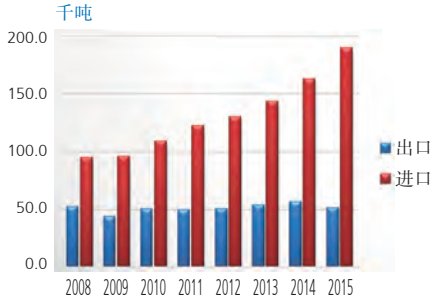


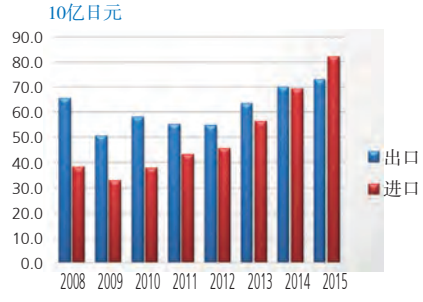
地区报告

日本非织造进出口情况（2008-2015）

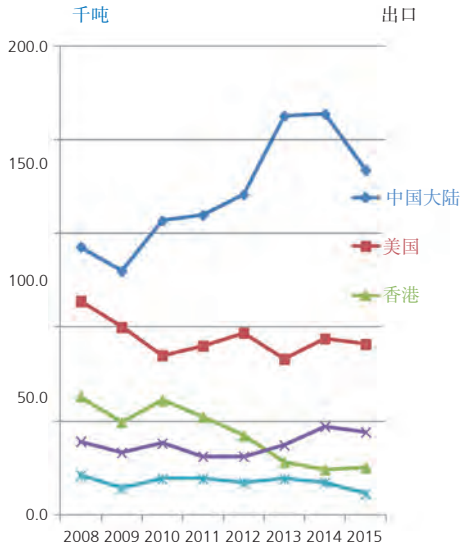
资料来源：财政部

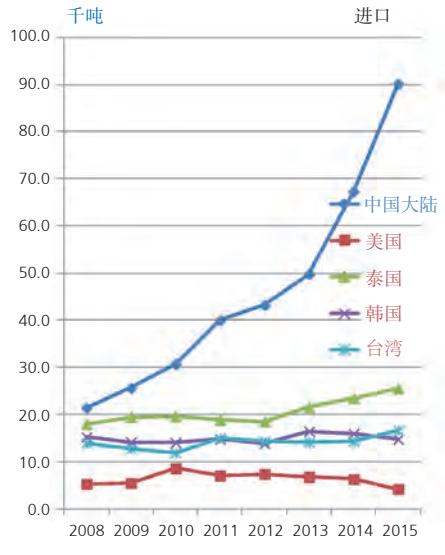
		2008	2009	2010	2011	2012	2013	2014	2015
千吨	出口	52.1	43.0	49.8	48.9	50.5	53.3	56.4	51.3
	进口	95.2	95.8	108.3	122.2	129.6	142.8	163.0	189.8
10亿日元	出口	65.2	50.2	57.9	54.8	54.4	63.1	70.1	73.0
	进口	37.8	32.7	37.5	43.1	45.6	56.2	69.2	82.0
单位（日元/公斤）	出口	1,251	1,167	1,163	1,121	1,077	1,184	1,243	1,423
	进口	397	341	346	353	352	394	425	432





日本进出口量最大的5个国家和地区





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结论

随着超薄芯层趋势在全球市场上的蔓延与发展，对于厂家和供应商来说，从全盘着眼满足这方面的需求显得非常重要。而其中一个重要的部分是了解各种测试方法，然后利用其中一种方法对定义的目标进行性能测试，同时结合消费者在使用过程中的体验。

(资料来源: "www.nonwovens-industry.com")

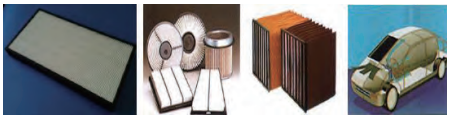
用电纺和熔喷加工HEPA合成滤材的研究和开发

James Kim
Dong Wha co.,Ltd

必要性

* 室内空气质量问题使得对多功能过滤介质的需求增加
* 使用对人类及环境友好型的过滤介质必要性，反对使用非环境友好型的玻璃介质

应用

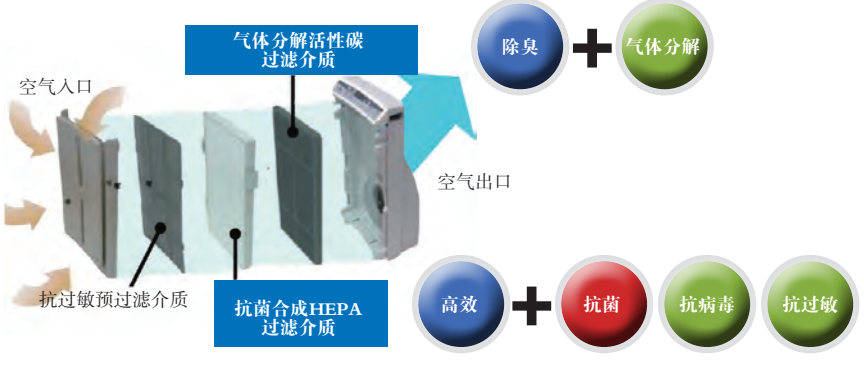


需求

混合过滤器的目标

最终目标

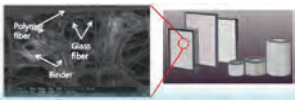
* 具有抗菌、抗病毒、抗过敏及除臭的多功能HEPA过滤器
* 具有生态控制功能的合成混合(静电纺+熔喷)HEPA过滤器的发展



关键技术

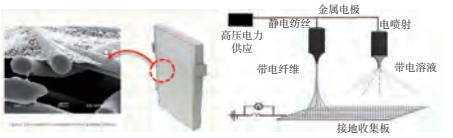
合成HEPA过滤器

之前：采用湿法成网的玻璃介质及驻极熔喷介质（非环境及人类友好性，同时滤阻高）



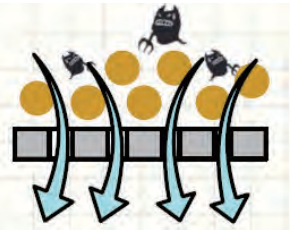
之后：开发了生态可控多功能合成混合(静电纺+熔喷)HEPA过滤器。该过滤器具有如抗菌、抗病毒、抗过敏、除臭。（环境及人类友好型，同时阻力低）

多功能性及高效低阻



抗过敏

之前：简单的捕捉细菌以及螨虫



简单的捕捉细菌以及螨虫
→细菌及螨虫的增长
→消化酶放电(Derp1重组尘螨P1蛋白)
→第二次污染

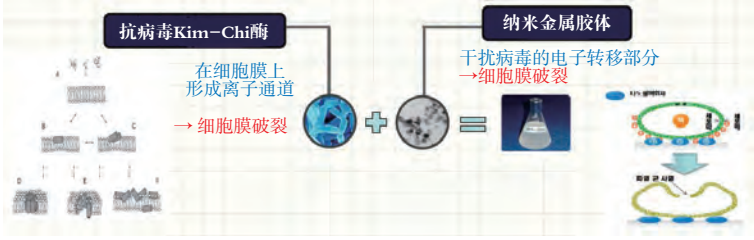
之后：开发新型抗过敏试剂以化学吸收的方式分解DerP1(消化酶类蛋白质)

物理捕获+新型抗过敏试剂以化学吸收的方式分解DerP1(消化酶类蛋白质)


抗病毒

之前：将纳米银以及硫铵添加剂加入滤料
之前的抗菌剂：金属纳米银以及硫铵添加剂→对于病毒（比如H1N1）没有杀菌的能力

之后：加入Kim-Chi酶开发出新型抗病毒试剂（可以对抗H1N1）



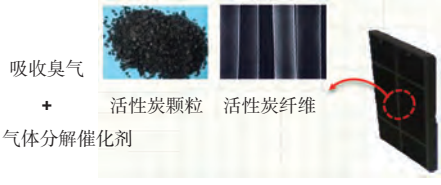
除臭

之前：通过ACP的微孔吸收臭味（引起二次污染）

通过微孔吸收臭味

再次放出臭气
-缩短寿命周期

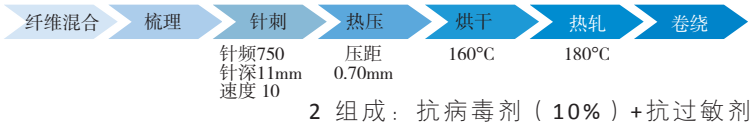
之后：通过活性炭颗粒（ACP）内部附着的气体分解催化剂分解臭气。
没有二次释放气体的问题延长寿命周期



如何制备合成HEPA过滤器

开发抗病毒及抗过敏基材

工艺1：热粘合工艺
1 纤维：低熔点涤纶纤维 6de/51 mm 50%+涤纶10de/51 mm 50%
重量：70g，透气性：500-600 cc/cm^2/sec
第一：制备基材

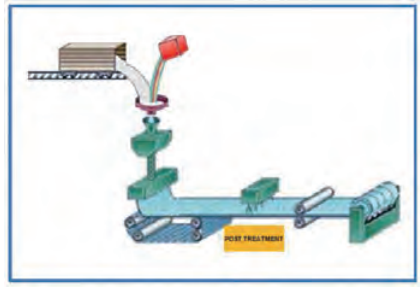


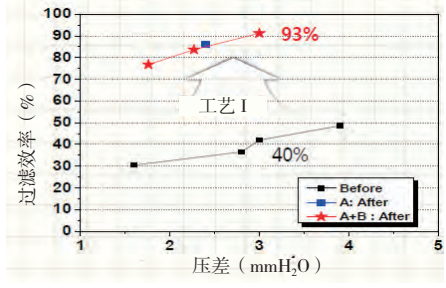
2 组成：抗病毒剂（10%）+抗过敏剂（6%）+丙烯酸粘合剂（10%）+水（72%）
第二：加入抗病毒及抗敏剂喷洒粘合

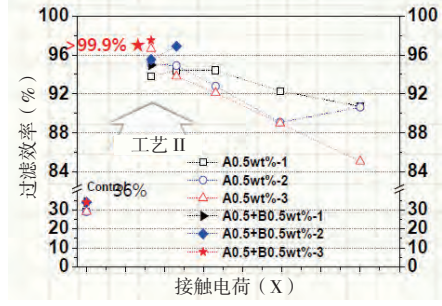
研发用于合成HEPA上的熔喷材料

制造亲水冷驻极熔喷

1. 添加剂
-A：热稳定性，减少电荷衰减
-B：高导电材料（有机和无机）
2. 亲水冷驻极
工艺1：非接触电气化（感应电气化）
工艺2：接触电气化（导电材料）

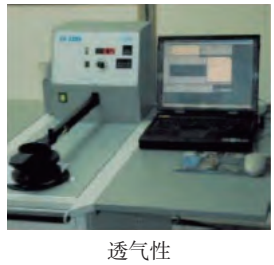






HEPA的熔喷性能

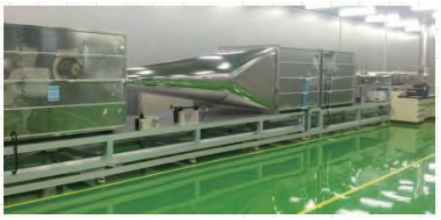
制作半熔喷-HEPA的规格
* 测试仪器



透气性
(Tex TextAG-FX3300)

效率及压差
(TSI-8130)

技术信息



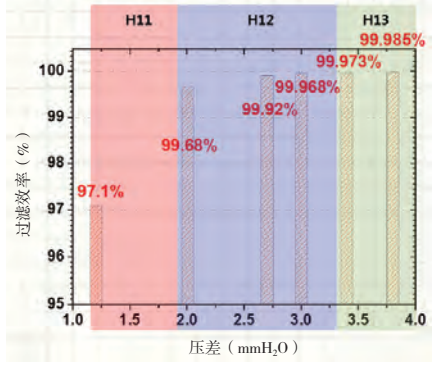
装配测试(KS B 6740, JIS Z 4812)

熔喷样品	介质（NaCl，32 LPM）			
	熔喷（自检）		熔喷（官方检测所）	
	压差（mmH_2O）	效率（%）		
A	3.5	99.70	3.36	99.62
B	3.06	99.93	2.98	99.92

制备不同型号高效低阻的熔喷材料

熔喷 介质		目标	结果
HEPA 11	效率（%）	≥95	96.5
	压差(mmAq)	≤1.5	1.45
HEPA 12	效率（%）	≥99.5	99.74
	压差(mmAq)	≤2.3	2.18
HEPA 13	效率（%）	≥99.97	99.973
	压差(mmAq)	≤3.5	3.4

效率与滤阻的关系



通过静电纺制备复合基材用于复合HEPA

通过静电纺制备复合基材

<抗病毒基材的性能>

特征		
宽度(mm)		1.3
重量(g/m^2)		70
厚度(mm)		0.35
透气性($cm^3/cm^2/sec$)		600
拉伸强力（kgf/5cm）	MD纵向	9.0
	CD横向	7.9
伸长率(%)	MD纵向	31.3
	CD横向	23.4

静电PVDF溶液的制备

○原材料

1) PVDF ① T co, 6133_颗粒型，PVDF均聚物含量：>96%

② S co21510_粉末型，PVDF树脂共聚物 HEP含量：>99.9%

2) 溶剂：二甲基乙酰胺，N，N—二甲基乙酰胺，99.5%

3) 丙酮99.7%

○条件：热板（80℃ 搅拌，混合）

<PVDf 混合条件；高浓度 PVDF>

	溶液	混合温度	粘度	S.C
1	[二甲基乙酰胺(50%)+丙酮(50%)](80%)+[聚偏二氟乙烯 苏威21510](20%)	(80℃)	910cP, 20℃	21.37%
2	[二甲基乙酰胺(50%)+丙酮(50%)](75%)+[聚偏二氟乙烯 苏威21510](25%)	(80℃)	2800cP, 19℃	27.16%

静电纺复合基材的研发

- 通过静电纺制备复合基材
- 静电纺PVDF的直径：800-1,000nm

在基材与熔喷复合后使静电纺在熔喷的表面上：采用1号溶液（20%）

- PVDF溶液：静电纺的直径：800nm
- [二甲基乙酰胺(50%)+丙酮(50%)]（80%）+ [聚偏二氟乙烯 苏威21510]（20%）
- 熔喷+基材：HEPA12_熔喷（30gsm）+淋膜(70gsm)_[热熔]
- 熔喷(30gsm): 透气性 35-40$cm^3/cm^2/sec$

效率：99.2%，

压差：2.8mmaq

E/S性能（gr/m^2）	之前（基材+熔喷）	加3.7gsm静电纺之后	加3.9gsm静电纺之后
重量（gsm）	103.2	106.9	107.1
透气性（$cm^3/cm^2/sec$）	23.8	14.8	12.7
效率(%)	99.3618	99.7641	99.8611
压差（mmH_2O）	3.00	5.17	6.11

→ E/S不易粘在熔喷表面。
压差比预期的高出一些。

技术信息

静电纺与基材+熔喷的复合：采用2号溶液

- PVDF溶液： 静电纺直径： 1000nm

[二甲基乙酰胺(50%)+丙酮(50%)]（ 80% ）+ [聚偏二氟乙烯 苏威21510]（ 25% ）

- 熔喷+基材： HEPA 13+（ 基材+静电纺 ）

熔喷(30gsm)： 30gsm

透气性： 25cm^3/cm^2/sec

效率： 99.95%，压差： 3.1mmaq

E/S性能 (gr/m^2)	之前 (基材+熔喷)	静电纺附在基材后的熔喷复合				
		3.7	3.9	4.3	4.5	6.0
克重 (gsm)	94.63	95.76	96.89	130.24	130.44	131.94
透气性 (cm^3/cm^2/sec)	20.0	19.0	18.1	17	17	14
效率 (%)	99.970	99.9856	99.9876	99.990	99.997	99.998
压差 (mmH_2O)	3.86	4.71	4.96	4.55	4.0	5.36

→E/S容易与基材粘合。

PVDF的直径和性能较高。

采用半熔喷HEPA 12级于HEPA过滤器上具有可行性。

复合HEPA的新进展

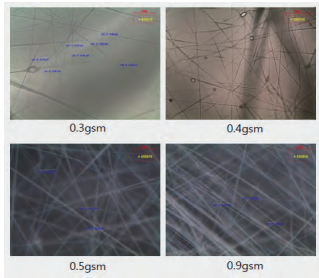
- 降低用于基材上静电纺数量(较低的PVDF浓度： 18%)； PVDF静电纺直径： 300nm

<静电纺条件>

*气体流量: 32L/min， Nacl 测试法

	条件			
溶液	[DMAc(82%)+[PVDF_SOLVAY 21510](18%)			
	粘度： 1100cP，54℃，S.C： 19.97%(加热板(80℃)			
基材	抗病毒基材： 70gsm[LM 100%, 6de(5)： 10de(5)]			
喷嘴	25G(型号尺寸： 0.25mm)_金属喷嘴×100ea			
条件	电压	60KV	纺丝压力	3公斤力
	齿轮泵	10 Hz	溶液温度	50℃
	吸入室	15Hz	纺丝房间温度以及相对湿度	26-27%，32℃
	纺丝	250mm	气刀(温度)	15Hz(80℃)
	线速度	5mpm	干燥器	110℃
	PVDF 质量	0.3-0.9 gsm		
PVDF	0.3gsm	0.4gsm	0.5gsm	4gsm
压差(mmAq)	1.1	1.9	2.4	25
效率(%)	61.7982	75.6249	88.2549	99.989

PVDF位于基布上的照片



结论： 带有基材的熔喷复合层可以看到直径为300nm的静电纺膜（ 0.5gsm ）。

静电纺丝膜与熔喷及抗病毒基材的杂化

杂化HEPA过滤器的制备

<热熔应用条件>

HEPA 杂化过滤器(基材 70gsm+ PVDF： 0.5gsm)+熔喷 12级(30gsm)			
线速度	8.5mpm	热熔重量	3.0gsm
比例	400%	热风	160℃
转速	12	喷嘴	150℃

	[抗病毒基材70gsm +PVDF:0.4-0.6gsm] +(HEPA 12 熔喷(30gsm)]
压差(mmAq)	3.9
效率(%)	99.989%

*气流： 32L/min, NaCl 测试法

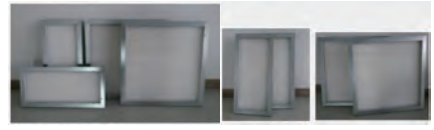
杂化静电纺HEPA的实现

制备HEPA过滤器用于HVAC

	[抗病毒基材 70gsm+PVDF: 0.5gsm]+(HEPA12)熔喷(30gsm)]	Cf. 玻纤HEPA
压差 (mmH_2O)	5.3	25.0
效率(%)	99.989%	99.97

*气流: 32L/min, NaCl 测试法

单元式HEPA过滤器用于HVAC



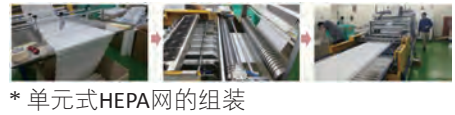
无隔板小型样品　　无隔板样品

加工工艺

折叠及总装

* 波纹折叠机

* 热熔小型折叠机可制造用于房间空气清洁器的HEPA网



* 单元式HEPA网的组装

技术信息

物理性能

性能	单位	重要性(%)	性能					官方数据	标准
			第一阶段	第二阶段		最终			
				目标	组装	基材	组装		
抗菌	%	10	99.5	99.9	–	99.9	–	FITI	ASTM2149
抗病毒	%	10	92	97	99	99	99	Kitasato in Japan	SHAKE FLASK
抗过敏	%	10	70	90		99.7±0.04	–	(GENOSS)	Der p 1 ELISA
除臭	%	10	60	70↑	Over 70	NH_3	83.3	FITI	
						HCHO	88.7		
						Toluene	97.5		
透气性	$cc/cm^2/sec$	5	300	超过300		630.2		FITI	KS K 0570
均匀性	CV%	5	7	5		4.1	–	FITI	KS K 0570
E-SPRAY的均匀性	CV%	5	7	5		1.8	–	KOTTITI	KS K 0570
效率	%	10	99.5	99.9	99.97	99.99	99.99	KITECH	KS B 6141
压差	mmH_2O	10	5	3.8	4.0↓	3.4	3.9		KS B 6141
毒性	LD50,mg/L	5	–	>2,000	–	>2,000	–		2008-44
皮肤刺激性	–	5	–	无刺激性	1̄8	无刺激性	–		

全球市场地位

熔喷+静电纺工艺在全球空气过滤器市场上的应用情况

* 应用：介质以及HEPA过滤器、汽车舱内过滤器、室内空气过滤器、面具过滤器。

市场：110亿美元（以卷材形式估算）

* 增长率/年：3%

年	2014	2015	2016	2017
市场容量(十亿美元)卷材	11.25	11.60	12.00	12.50
成品市场(十亿美元)	56.25	58.25	60.00	62.50

（<<<上接41页）

NIOSH最近展示了对一次性隔离服审查后的新发现，在APIC会议的海报上写出以下结论：1. 隔离服的强力范围分布很广；2. 在22款隔离服中，有7款隔离服不符合AAMI PB70要求的标准；3. 接缝处和系带的设计可能不适合一些隔离服，无法为使用者提供必要的保护。这些发现应该会为一些非织造企业提起警示，用于手术服和隔离服的ASTM标准正在制定，一系列的调查结果可以登录tinyurl.com/o3oaqhp.了解。

至于可洗涤的防护服的研究，NIOSH称，这个部分“正在进行”，同时他们“希望”将在今年完成。对可循环使用的隔离服的审查将持续很长的时间，由于一些隔离服需要经过它们的生产厂家所标注最大的清洗次数（一般为75-100次）然后对它们表现的性能进行评估。现在，根据NIOSH称，该机构正在对清洗一次后的“可重复使用隔离服”进行评估。

NIOSH对所有研究的最后一个问题是：PPE需要建立怎样的使人可以接受的保护等级，用于抵御在血液和体液中，如埃博拉这样的病毒。

用ASTM和ANSI的标准来评估手术服和隔离服的性能，NIOSH表示对于医护工作者来说，“如何根据建议，实际和法规去选择最合适的防护服”是一项巨大的挑战。该机构同时注意到这挑战极其复杂，因为“使用的这些术语还未达成行业共识”和“需要以依据为基础引导定义这些术语，从而使雇主/购买者，隔离服和工作服的厂家/供应商之间的沟通更加方便。”

这一切都在为非织造企业提供机会和挑战，同时他们将从潜在的资金和“总统保证”更舒适和更高性能PPE的市场中获益，但同时这将面临更严厉的标准和后续性能要求。

(资料来源:“www.nonwovens-industry.com”)

技术发展趋势

博马工程公司揭示了吸收用途的双叶纤维共成形非织造加工过程

吸收性非织造布常用的技术包括水刺梳理纤网、浆粕气流成网以及共成形成网。共成形成网是指木浆与熔喷纤维混合的过程。共成形成网过程由金佰利-克拉克和其他公司开发。金佰利克拉克利用该技术主要生产婴儿湿纸巾。近年来，共成形工艺的发展改进了流体管理、纤网均匀性、柔软性、纤维的捕获，熔喷纤维质量和整体原材料产能。然而，仍令人感兴趣是提高这一技术的能力，纸浆/熔喷纤维混合、纤维直径和长度控制和新型非织造布的结构及应用。

博马工程公司SRL申请了该专利，一种改良的共成形加工过程，揭示了共成形非织造布及其产品应用。根据本发明的方法，熔喷聚烯烃双叶或三叶以及圆截面纤维与高吸水性树脂或木浆纤维多层纤维通过应用多个成形头形成多层、热粘合的吸收结构。这种独特的设计是在传统的熔喷模头下安装了二次拉伸装置，可提供多种加工工艺和纤网性能。这些优势包括使熔喷纤维细度更细，降低熔喷模头空气速度以改善木浆纤维的捕获，控制不连续的纤维长度，处理低熔体流动率聚合物的加工性、提高熔喷纤维韧性、改善木浆纤维和熔喷纤维的混合以及预粘合前纤维的混合程度。

多层非织造结构也在不断发展，包括上、下顶层为纺粘层，三、四层为共成形的熔喷层的四层结构。与传统的熔喷纤维网相比，这种独特的结构有较高的强度，这是由于第二牵伸装置使纤维具有较高韧性。本发明还公开了以纺粘网、梳理纤网以及其他熔喷网和塑料薄膜叠层的吸收性非织造材料。吸收性非织造布的应用包括干、湿纸巾、尿布、训练裤、卫生巾，成人失禁产品及床垫。

根据公开的加工过程，首先使用熔融指数为15-70的聚合物从模头喷丝孔中喷出“帘幕状”熔喷纤维。这些纤维可以具有不同的截面，如圆形、双叶形、三叶形、椭圆形。双叶形截面的纤维对加强木浆和熔喷纤网结合非常有利。各种聚烯烃、聚酯、聚酰胺、聚乳酸和一些弹性体的均聚和共聚聚合物可加工成单组份或皮芯双组分复合纤维。

然后将颗粒或短纤维从喷嘴喷入熔喷纤维幕中。该喷嘴具有一对计量喂入辊和一个压缩空气源的类似烟囱（锥形）部分。纤维进入喷嘴内部产生的气流中、连续地将这些颗粒或短纤维吹入熔喷纤维网。喷嘴可以喂入木浆纤维、高吸收性树脂颗粒及其他短纤维，如棉花纤维。在短纤维喂料管下面安装有一个熔喷纤维的第二次拉伸装置。模头的出口与拉伸装置的入口之间的距离可调。

拉伸装置包括具有槽式入口和出口的垂直通道。

该装置通过具有文丘里效应的位于纤维流每侧四个不同腔室喷出的高速空气来拉伸熔喷纤维。通过吹风管将具有温度、压力的空气提供给每侧的垂直通道。熔喷模头的热空气流和拉伸装置的气流可以单独调整，因此提高了其灵活性和对设定熔喷工艺的控制。

这种设计有利于控制丝束的拉伸变细且避免产生摇摆和波动的不良丝。拉伸装置使熔喷纤维细度减少到小于2μm，然而，根据最终用途，也可以生产10～400um范围内的粗纤维。此外拉伸装置还有助于熔喷纤维与木浆纤维的混和以及形成其局部粘合。

通过调节熔喷热模头和拉伸装置中的相对气流速度，可以生产出目标纤维长度在40-150毫米的不连续的熔喷纤维。通过可选的工艺配置，可从多个模头喷丝孔形成熔喷或纺粘纤维。

预粘熔喷和木浆纤网在移动式输网帘形成，然后进入热轧机。在一种配置中，热轧机具有一个光滑的橡胶辊和一个刻花辊。非织造纤网也可以通过水刺加固、超声波粘合、机械加固、粘合剂粘合或热风粘合。

(资料来源: “Nonwovens Markets”)

产品集锦

TJ Beall展出TrueCotton非漂白棉

产品保证质量的同时并未牺牲卫生市场对白度的要求

TJ Beall在波士顿会展中心展示TrueCotton非漂白棉纤维的样品。该新型天然纤维是对现有产品的改进，因为其外观洁白，因而没有与个人护理行业下游用户对白度的要求产生冲突。

“如今我们所提供的TureCotton纤维颜色亮白，同时该产品能够保持我们在非织造产业作为价格最具竞争力的天然短纤供应商的地位。我们的纤维符合任何白度的规格，同时不需要化学的煮练和漂白，依靠纤维前所未有的可持续发展，使我们能够继续提供卓越的营销机会。”TJ Beall的首席运营官Lawson Gary说。

Gary补充说TrueCotton原始模型具有天然、灰白的颜色，这种颜色会产生一些问题，因为对于一些品牌拥有者而言，当与其它白色热塑性材料混合时，材料的整体颜色应该为白色。新型纤维能与热塑性纤维混合，或与100%TrueCotton基材混用，并且最终卷材不会出现“泛黄”现象。TJ Beall在美国非织造材料展览会（IDEA2016）中展示由100%新型TrueCotton纤维以及与聚丙烯按50/50的比例混合的水刺卷材。另外，TJ Beall还展示梳理热风粘合，梳理热粘合，水刺混合非织造布，包含旧型号的TrueCotton。

(资料来源: “www.nonwovens-industry.com”)

Avgol在IDEA2016展览会中展示卫生材料

总部位于以色列的Avgol公司是世界上最大的几个纺熔非织造布生产商之一，该公司在IDEA2016展示其用于卫生市场的创新产品。Avgol非织造厂位于北卡罗来纳州、中国、俄罗斯以及以色列。该公司最新投资了一条最先进的Reicofil生产线，该线目前正在建设中，地址位于北美北卡罗来纳州的莫克斯维尔。Avgol生产的非织造材料用于婴儿尿片、成人失禁产品以及妇女卫生产品。该材料在设计中特别考虑了柔软性、皮肤护理及流体控制。

Avgol全球销售的副总裁Shane Vincent说：“我们已经研发了范围广泛的超轻纺熔非织造材料，这些材料将适用各种应用领域，同时反映了我们乐于提供优质的产品，为成千上万的婴儿、母亲、年长者的生活以及健康做出积极地贡献。参加IDEA16展览会，为我们提供了一个极好的机会使我们能够与新老客户面对面的交流，更多的发现他们在这个行业面临的挑战。这个展会是一种完美的方式，能够让我们参与并确保我们正在开发的解决方案能够迎合市场及客户的需求，从而使我们的产品能够具有竞争优势。”

(资料来源: “www.nonwovens-industry.com”)

H.B. Fuller展出新型粘合剂

Conforma粘合剂做好准备迎接卫生领域不断变化的要求

H.B. Fuller在IDEA16展览会中展示其最新独特的Conforma粘合剂。“我们的解决方案将提供卓越的舒适性、性能及成本，从而满足世界上不同个体形状及尺寸，以及满足人们对于身体舒适生活的需求，同时该产品将会是当今卫材市场最完美的选择，”H.B. Fuller全球卫材市场经理Kirstin Hedin说。

在过去30年里，H.B. Fuller用一种简单却深远的方式帮助卫材领域的客户想象，创造以及设计能够触动人们生活的解决方案。卫材的改变，包括更少地浪费、更强的吸收性以及更薄的芯层、更大地适合及舒适性等。Full-Care品牌对H.B. Fuller及其客户以及客户的客户都非常重要。该产品能够使H.B. Fuller与客户合作的项目达到一个共同的目标——创新、降低成本。在Full-Care 8000系列里用于弹性粘结的热熔粘合剂多年来帮助客户达到对卫材的要求。粘合剂家族可以阻止弹性线蠕变，同时也可以作为结构性粘结在格外需要强力的地方。

(资料来源: “www.nonwovens-industry.com”)

（<<<上接31页）

为获取最大化的存储空间，如今大多数SaniWorks食品用擦拭产品开始采取新型盒形包装方式，Hospeco公司的推出的这种包装盒是分为有盖和无盖两种并且深度小的包装盒，这样就可以使擦拭产品平铺于盒子底部，从而只需占用较少的横向货架空间来存储，这样就大大缓解了库存不足的压力，同时还起到保护擦拭产品的作用。

(资料来源: “www.nonwovens-industry.com”)

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