

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

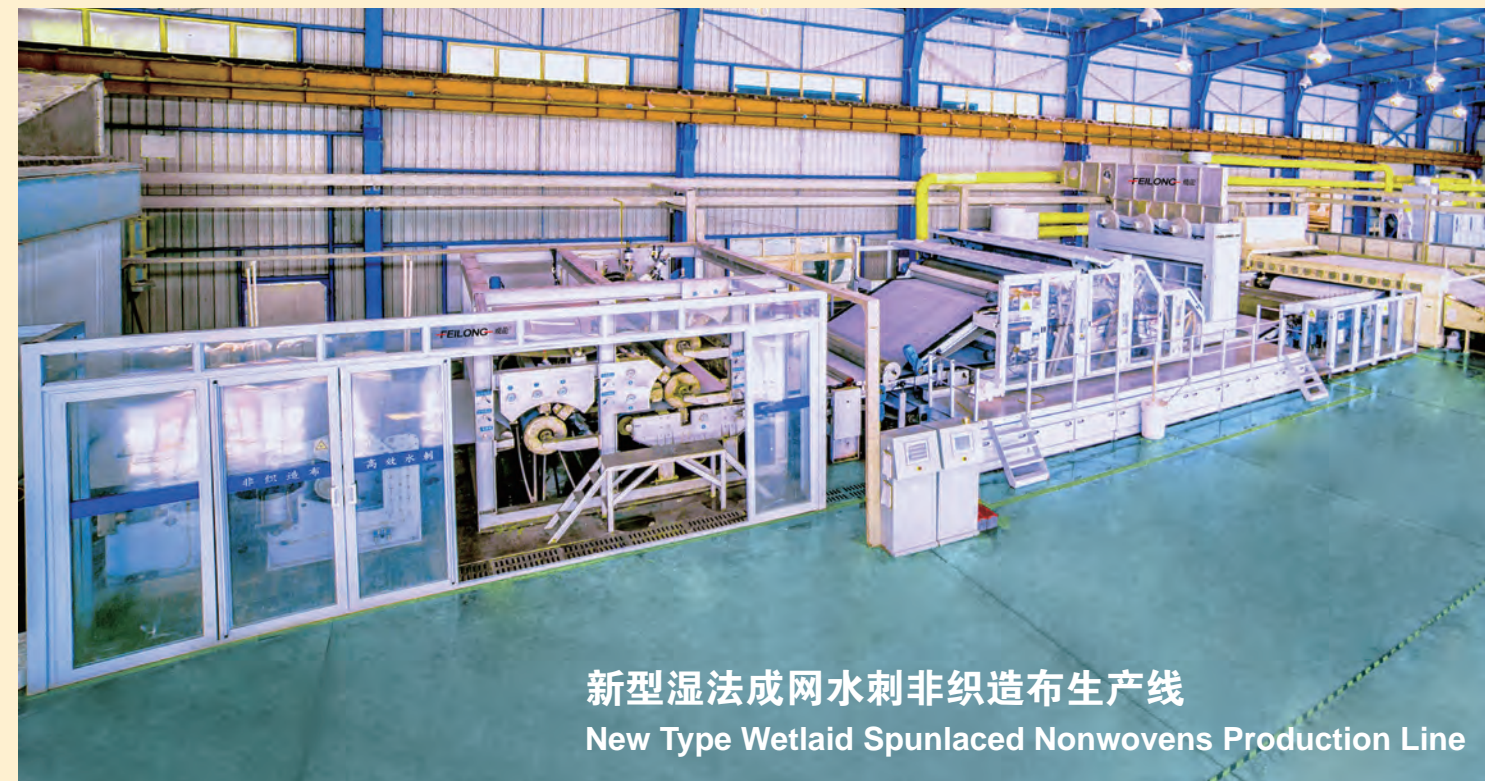
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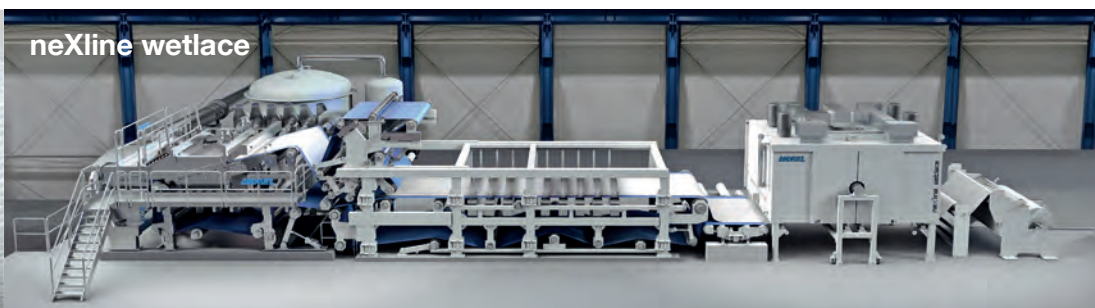
Changshu zhentai nonwoven machinery co.,ltd is specialized in the developing and manufacturing of nonwoven machinery.

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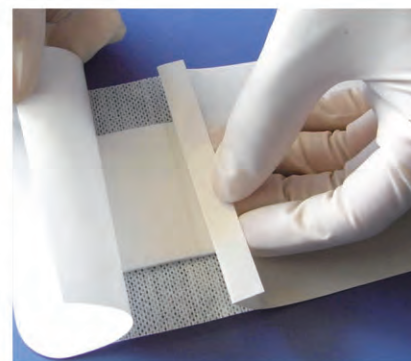
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过滤材料
Filter media



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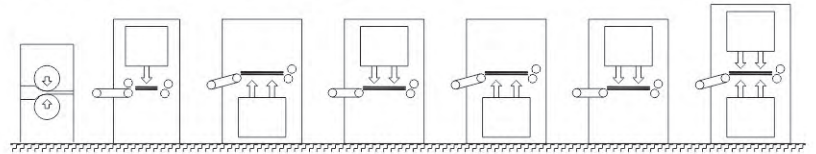
医用卫生材料用布
Medical & Hygiene materials

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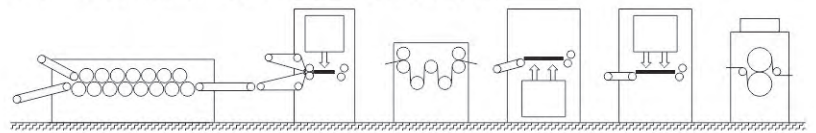
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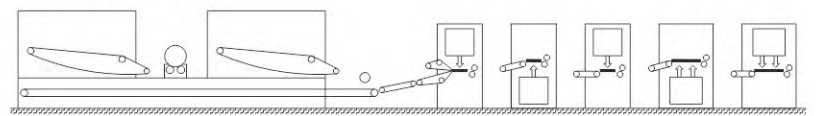
合成革基布 Artificial leather substrate



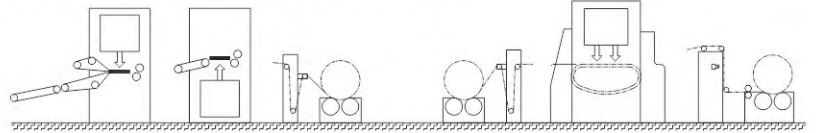
土木工程家居用布 Geo-textile household cloth



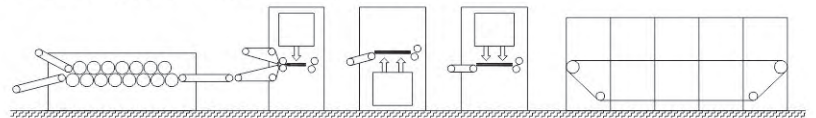
过滤材料 Filter media



汽车内饰、地毯 Automotive interiors, carpet



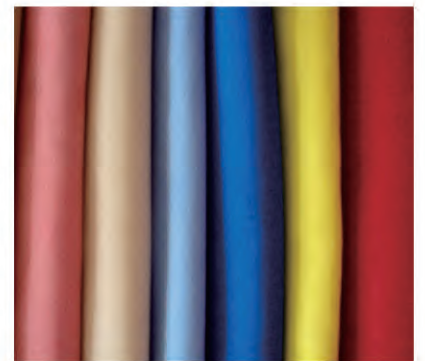
医用卫生材料用布 Medical & Hygiene materials



汽车内饰
Automotive interiorst



地毯
Carpet



合成革基布
Artificial leather substrate

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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。

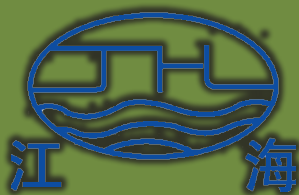


LYG Boulder Industrial Co. Ltd is located in DongHai Economic Development Zone, LianYungang, JiangSu Province, established on Nov.2007, mainly engaged in producing and selling medical protective and hygiene materials. We designed SMMS line for medical use, having unique technology. Our line can produce 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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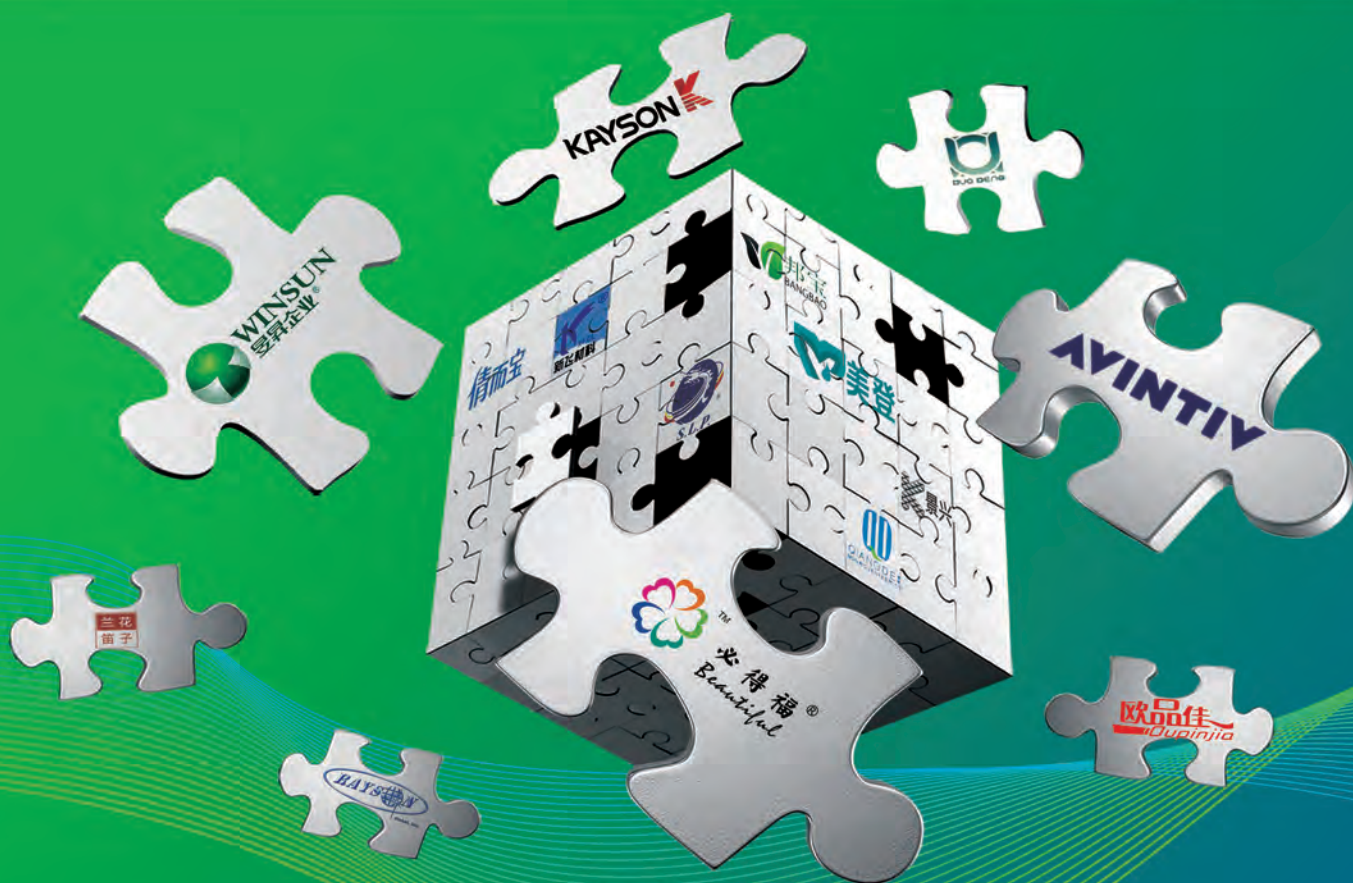
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佛山市南海区医卫用产品行业协会

Nanhai Medical and Hygiene Products Industry Association

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Business News

ANDRITZ to supply a complete needlepunch line to AUTOTECH Nonwovens, India

ANDRITZ Asselin-Thibeau, part of international technology Group ANDRITZ, has received an order from AUTOTECH Nonwovens, India, to supply a complete needlepunch line for flexible production of nonwovens for automotive, filtration, and coating substrate applications. It is the first complete needlepunch line to be supplied by ANDRITZ to India. Start-up of the line and personnel training are scheduled for mid-2016.

The ANDRITZ neXline needlepunch solution is designed for high production capacities and integrates fiber opening and blending, chute feed, carding, crosslapping, drafting, needle loom, and winding technologies. The complete process is controlled by the ProDyn closed loop system and allows for extremely demanding profile requirements. The highly reliable ANDRITZ needlepunch technology meets the most stringent quality demands.

AUTOTECH Nonwovens, based in the automotive hub of Gujarat state, is one of the leading suppliers of high-quality nonwovens to the automotive industry in India. The line ordered from ANDRITZ will be the first integrated, single-source needlepunch line investment purchased in Europe by an Indian company in over seven years, according to Indian sources. Using the ANDRITZ high-quality needlepunch technology will result in a huge leap forward in the range of nonwoven technical textiles available in India.

Mogul to build new plant in Turkey

New production center to be located near Istanbul

Mogul is expanding its production in Turkey with a third plant in Luleburgaz, Turkey, near Istanbul. Mogul already operates two plants at Gaziantep, Turkey, which is a considerable distance away from Luleburgaz.

Mogul's third Turkish plant will utilize cutting edge technology to add performance-based fabrics to its existing nonwoven offerings to better serve demand for specialized and differentiated end uses such as technical applications. The new products will comprise

complex fibers, filaments and web formations as well as chemical treatment and printing applications. The high grade production lines include processes such as splittable bi-component filaments as well as cross-lap spunlace. They are expected to begin operation during the second half of 2016.

Mogul plans to leverage its experience in spunbond and spunlace to develop new products using the latest bico and microfilament technology. Mogul specifically addressed this goal by acquiring patents for unique microfilament structures from North Carolina State University. Mogul's first venture into bico technology was with its Buffalo brand fabrics, which required the company to develop expertise uniquely separate from common fiber extrusion processes. This technology produces cloth-like fabrics to address markets such as clothing and upholstery as well as ink jet printing, wipes and other technical applications.

The new cross-lap spunlace technology complements Mogul's existing spunlace fabric offerings and targets demand in automotive, artificial leather, dry wipes, depilation pads, roofing and medical and hygienic markets. The cross-lap line will incorporate the latest technology in in-line impregnation for fabric padding, acrylic binding, water and alcohol repellent treatments, flame retardant treatment and fabric colouring.

"At Mogul we pursue our business aggressively throughout all its facets and associated technological advancements," says CEO Serkan Gogus. "This is how we remain competitive in our markets, by utilizing our knowledge to evolve new products which respond to market needs. With our new venture, we aim to obtain more durable, efficient and natural comfort fabrics which will open new frontiers for us."

This is the first stage investment of a three phase investment plan intended for the Luleburgaz plant. Mogul plans to eventually triple initial capacity at the site.

Outside of Europe, Mogul announced in August it would build a spunlace operation in

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South Carolina, marking the company's first overseas operation. This facility is expected to be operational in the second quarter of 2016 (Source from: "www.nonwovens-industry.com")

Don + Low to add meltblown line

Line will expand scope into new markets

As part of an effort to develop new products for its existing markets and expand into new markets, U.K.-based Don & Low Ltd. has invested in a new meltblown nonwovens line, which will begin operation in Forfar, Scotland in June 2016. The 1.6-meter-wide Oerlikon Neumag line represents a multi-million dollar investment for the nonwovens producer and expands its technological reach in the nonwovens industry.

Don & Low has been involved in nonwovens since 1989 when it started a 3.2-meter Reicofil line and has expanded its operation with two additional Reicofil lines since then. The line has largely targeted the home construction market both in the U.K. and internationally but the company has also made strides in a number of medical areas.

With the new meltblown line, the company hopes to expand into a number of new markets including filtration, automobiles, incontinence, absorbents and advanced composites. It will have an initial capacity of more than 1000 tons.

"In line with our strategy to invest in new processes complimentary to existing ones, the need to embrace new materials, expand our capabilities in technical composite manufacture made the meltblown process an easy and practical choice," says Keith Galloway, general manager, Nonwovens. "We have exploited our current capabilities to near their limit and it was important to inject a new capability that would enhance the continued development of technical fabrics including composites."

The new line will use a range of polymers including polypropylene, polyethylene and thermoplastic polyurethane and offers additional features like online air permeability, electrostatic charge capabilities, gap control calendars and multi-width splittings. This will allow Don + Low to produce meltblown and composites to exact customer requirements.

Don + Low has been a subsidiary of Thrace Plastics since 2003. In addition to Don & Low's three Reicofil line, its sister company, Thrace Nonwovens operates a 3.2 meter Reifenhauser line in Greece.

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

Ah-choo! The Sneee catches germs from the Vampire Sneeze

Stretchy, antimicrobial nonwoven sleeve helps prevent the spread of germs

The latest generation of kids has been taught at school to cough and sneeze into the crook of their arm—also known as the vampire sneeze—when a tissue isn't available, and rather than covering their face with their hands. But a father and son from New York recently came up with an idea to prevent the spread of germs even further, with an antimicrobial-treated nonwoven "sleeve" that goes over the crook of a child's arm—The Sneee.

The Sneee is a soft, stretchy, absorbent little sleeve that kids wear over their arms, shirts, sweaters, sweatshirts or pajamas to catch the "yucky stuff." Each disposable Sneee can last from 12-24 hours and absorbs phlegm and mucus from reaching a child's clothing. The antimicrobial application—4.846% citric acid and .003% silver—kills 99.9% of viruses and bacteria on contact.

Nicholas Bratskeir, one of the co-creators, says his father Stan first thought of the idea two years ago when his grandson Chase, Nicholas' nephew, saw Chase sneeze into the crook of his arm. "This is something my generation was never taught, and my father's generation was definitely never taught," Bratskeir recalls.

After learning the reason why Chase was sneezing into his arm, the idea—and the word Sneee—popped into Stan's head. "We thought, this could actually work. From the inception, we thought about how this would fit on a kid's arm, we thought about it going over someone's clothing, what it would need to be treated with, what the material would need to be made of so that it wouldn't scratch a kid's face, and it came to be something that was real," Bratskeir says.

Bratskeir and his father searched high and



low for the right material, which resulted in a spunbond nonwoven made in the USA. "It's a proprietary nonwoven fabric and it was one of the most difficult pieces about creating this product," he says. "There are so many nonwovens out there, especially ones that are made in China that look exactly like the product you want, but then when we got a swatch of it we realized it's nothing close to what it looked like online or how it was described. Our nonwoven has a characteristic that allows it to stretch in one direction, and it has a good amount of stretch so that it can fit kids from ages three years old to eight years old."

Among the advantages of the Sneeve is that it enforces good behavior for kids, he explains. "Most kids aren't going to school with a box of tissues or hand sanitizer in their backpack, so to build on the behavior that kids are already taught in schools, and to really enforce that behavior with the Sneeve, we feel that it's a win-win situation for parents, for kids, and for us too."

The Sneeve is currently sold on www.thesneeve.com, retailing for \$9.99 for seven. It is expected to be available at a major national retailer early next year. (Source from: "www.nonwovens-industry.com")

Nbond starts up Voith / Trützschler line

Hangzhou Nbond Nonwoven, located in Zhejiang province, China, successfully started up a new flushable wipes production line in April 2015. The new production line is the first one on the Chinese market to use the innovative wetlaid spunlacing (WLS) concept of the HydroFormer and AquaJet technology, developed by Voith Paper and Trützschler, respectively. Only three days after start-up, the operating speed of 200 m/min was reached.

"We were completely satisfied by the know-how and experience of Voith and Trützschler. Thanks to the professional ability and excellent professional dedication of their technicians, the project ran both quickly and smoothly," says Zhang Jie, general manager of Nbond.

With the combined efforts of Nbond, Voith and Trützschler, it took only five months

to complete plant construction, installation and commissioning. The production line uses wetlaid technology with cellulose fiber as raw material for the production of flushable wipes and is Nbond's 8th line. With a 3750 mm wire width and 250 m/min design speed, Nbond produces flushable wipes within a basis weight range of 50-80 gsm and will achieve an annual capacity of up to 15,000 tons. The flushable wipes will have excellent dispersibility and are 100% biodegradable.

Voith supplied a key component, the HydroFormer, which builds on Voith's long expertise in the pulp and paper industry and allows the nonwovens to be produced entirely from cellulose, a renewable raw material, as well as the entire stock preparation, the approach flow system, auxiliaries and onsite service. An entire automation and control package was included as well. Truetzschler, meanwhile, supplied the well-known AquaJet technology, a drum dryer and a winder, which were adapted to the needs of the wetlaid spunlacing process.

This resource-efficient production line will play an important role for Nbond in strengthening its market position in China and even on the global non-woven fabric market. Nbond was founded as a member of the Robam Group in 2007 and has since become a world-leading enterprise in the wetlaid nonwoven fabrics industry. (Source from: "www.nonwovens-industry.com")

A wipe for beard maintenance

Zekes Beard Wipes use essential oils and aloe to clean and moisturize

Inspired by "Movember," also known as No Shave November—the month in which men grow out their facial hair to raise awareness and funds for men's health programs—Kyle Larocco founded Zekes Beard Wipes.

Larocco grew out his beard in "Movember" 2014, and his girlfriend hated it. "When asking her why the hatred towards beards, she said, 'because they're ugly, dirty, things get stuck in it, and it smells funny...it just doesn't look good,'" he says.

Even friends were complaining, and finally Larocco realized he couldn't ignore them anymore. The itch, the dry flakey skin, smells,

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and worrying about what to eat was getting to him. "That's when I came up with Zekes Beard Wipes—a mobile bath for your beard," he says.

The wipes, which launched on November 1, are made with essential oils such as coconut oil, jojoba oil, and argan oil, specifically selected because they are optimal for cleaning and conditioning beards. The wipes also include aloe to condition skin where it can be most irritated, especially for new beard growers. "We stayed with the basics—the most natural compounds to keep our wipes hypoallergenic," he explains.

The 46-square-inch wipes are thick, durable, elastic and stretchy, according to Larocco.

They are available in a 10 pack or 30 pack of individual wipes. "The 10 pack is shaped like a cigarette box so it's discreet and easy to carry," he says. "Don't get us wrong, beard oils and beard balms have their place. But the bar, the game, the office, or wherever you might wind up on a given evening - aren't it. Zekes Beard Wipes are portable, practical and perfectly suited to the job of keeping your beard looking its best on the go."

Next in the pipeline for Zekes Beard Wipes is a "manly" scented wipe.

Zekes Beard Wipes are currently available at ZekesBeardWipes.com and Amazon.com, and will soon be stocked on Amazon.co.uk. (Source from: "www.nonwovens-industry.com")

Minutes of 2015 ANFA General/Board Meeting

The ANFA 2015 General/Board meeting was held in Mission Hills Hotel Dongguan of China on December 1, 2015. More than 40 participants join the meeting which included ANFA chairman, vice chairman, directors and representatives from Japan, China mainland,

Korea, Taiwan, Hongkong and other countries and regions.

1) The following directors of the Board were approved for the term of Jan. 1. 2016 – Dec. 31, 2018. (*marked; Newly appointed, and others were re-appointed)

| | | |
|-----------|---------------------------|--|
| Japan | Takenaka Yasuo | Tapyrus Co., Honorary Chairman |
| | Yoshida Toshio | Japan Vilene Co., President |
| | Inoue Kazuhisa | Shinwa Co., Ltd. President |
| | Oishi Yoshio | Dynic Corporation, President |
| | Miki Masato | Miki Tokushu Paper Mfg. Co., President |
| China | Guo Kai-Zhu | Xinlong Nonwovens Co., President |
| | Gu Yuan Ming | Dalian Rui Guang Non-Wovens Co., President |
| | Zhao Min-zhong | Guangdong Jofo Enterprise Co., President |
| | *Yang Changhui | Shantou Sanfai Nonwoven Machinery Factory Co., President |
| | *Deng Weixiong | Beautiful Nonwoven Co., Ltd. President |
| Taiwan | Huang Chin San | Nan Liu Enterprise Co., President |
| | Chiu Cheng Chung (Norman) | Web-Pro Corp. President |
| | Chen Hung Kun | Hsieh Ray Filament Co., President |
| | Chiu Han Lang (Allen) | San Fang Chemical Industry Co., Vice General Manager |
| | Lin Kou Ming | Freudenberg Far Eastern Spunweb Co., Ltd President |
| Korea | Ku Pyung Kil | Star Susemi Co., Chairman |
| | Park Chan Hyuk | Shunshn Enterprise Co., President |
| | Kim Young Ok | Soung Kwang Industrial Co., President |
| | Cho Kwan Young | Daehan I.M Co., President |
| | *Kim Jung Yeol | Sungkwang Ind. Co., President |
| Hong Kong | Yang Nature | National Bridge Industrial (Holdings) Ltd. President |
| India | Gupta Samiar | Business Coordination House Managing Director |
| Indonesia | *Billy Hidjaja | PT Hasil Damai Textile, CEO |

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2) The following Officers were approved for the term of Jan. 1, 2016 – Dec. 31, 2018. (*marked; Newly appointed, and others were re-appointed)

Supreme Adviser: Tai Jun Chi (KNH Enterprise Co., Chairman)

Honorary Chairman: Dr. Kanai Hiroaki (Kanai Jyuyo Kogyo Co., President);

Wang Yanxi (CNTA Science & Technology Co., President)

Chairman: *Huang Chin San (Taiwan)

Vice Chairman: Takenaka Yasuo (Japan)

*Ku Pyung Kil (Korea)

*Guo Kai-Zhu (China)

Auditor: Yoshida Toshio

Executive Officer of Working Committee:

Yang Xiang (CNTA Science & Technology Co.,)

Secretary General: Tsuchiya Hideo (ANNA Adviser)

Ref: Liaison offices (Secretariats)

Japan (ANNA): Sayanagi Toshiaki

China (CNTA): Zhang Bo

Taiwan (TNFIA): Ms. Huang Chih-Ping

Korea (KNIC): Yi Sang Kook

Zhentai's first 7.2 m width spunlaid+needle-punched geotextile, roofing felt production line debugging success

Jan 20th, 2016, the first 7.2 m width spunlaid+needle punched geotextile, roofing felt production line has been debugging success, which is combined by Zhentai Machine and Dalian Huayang.



Zhentai Nonwovens Machine in Changshu is professional R&D and manufacturing enterprises of nonwoven machinery, always stand at the forefront of Nonwoven Machinery Industry. For the mission of "trust Zhentai and satisfy each customer", Zhentai dedicated to offer global customers nonwovens machinery with advanced technology and excellent quality! The 7.2 m width spunlaid+needle geotextile, roofing felt production line debugging success is the first time for Zhentai to cooperate with Dalian Huayang. The highest needle punching

frequency of this line can reach 1500 r/min.



Zhentai is orchestrating competitive nonwovens machine!

ANDRITZ Nonwoven introduces latest innovations at IDEA16 in Boston

Graz, March 2, 2016. ANDRITZ Nonwoven, part of international technology Group ANDRITZ, will present its latest innovations at IDEA16, the major event for the nonwovens industry in the USA (May 3-5, 2016 in Boston; booth 801). Whether the requirement is for drylaid, wetlaid, spunbond, spunlace, or needlepunch, ANDRITZ Nonwoven offers integrated in-house solutions from forming to finishing.

ANDRITZ neXcal quadriga thermobonding calender:

More capacity, process stability, and product quality

In a continuously changing hygiene market, a multitude of new engraving patterns as a result of increasing demands on surface structures or fabric properties is a big challenge to nonwovens producers' flexibility. The outstanding new 5-roll calender concept is a milestone regarding increasing capacity, process stability, and product



ANDRITZ neXcal quadriga

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quality. ANDRITZ Küsters' neXcal quadriga is equipped with the proven Hot S-Roll and four embossing rolls with fully automated production change.

New solutions for high-capacity and sustainable production of ultralight fabrics

As the hygiene market today requires lighter spunlace fabrics with perfect uniformity, ANDRITZ Perfojet has developed new solutions for the production of ultralight fabrics. Thanks to its broad inhouse expertise in the drylaid and hydroentanglement processes, ANDRITZ can offer the perfect combination of the Isoweb TT card and the Jetlace hydroentanglement unit as a currently leading technical solution to process ultralight spunlace products at very high speed. Nonwovens producers are now able to achieve weights of 20 gsm and even less for their ultralight spunlace fabrics.

Along with highest productivity, sustainability is also a constant stimulus for development at ANDRITZ Nonwoven. As experts in full line engineering, ANDRITZ has developed technologies that contribute remarkably to reducing energy consumption and waste while keeping spunlace productivity at the highest level. Pre-wetting configuration, design of the injectors, neXecodry system for drying, water filtration recycling, or compact machine design are all unique advantages of ANDRITZ neXline spunlace.

Cost-efficient, flexible, reliable, and robust needlepunch lines

ANDRITZ offers cost-efficient, flexible, reliable, and robust turnkey needlepunch lines from opening and blending as far as the winder. The neXline needlepunch range covers technologies for a wide spectrum of nonwoven end-uses, such as geotextiles, automotive, filtration, roofing felts, and coating substrates.

The neXline needlepunch eXcelle range

provides individual solutions to meet producers' requirements in terms of fabric characteristics, such as weight evenness, tensile strength, and homogeneity at high production capacity, which can amount to between 4,500 and 9,000 tons per year. ANDRITZ Asselin-Thibeau supports its customers with technical line configuration and provides associated services to optimize their lines' performance.

Strong ANDRITZ Nonwoven base in North America

In response to the growing US-American market for disposables and durables with many key players, ANDRITZ is well represented in capital sales and aftermarket service for all nonwovens segments by its local branch in Spartanburg, South Carolina. US customers benefit from a highly skilled sales team, responsive service by experienced field and process engineers, and a great range of original ANDRITZ spare parts on stock. One main field of experience is the roll service center, specialized in repair, reconditioning, and upgrading of all types of rolls. Field engineers, spare part specialists, and factory-trained technicians for drylaid and needlepunch technologies from ANDRITZ Asselin-Thibeau complete the ANDRITZ Küsters team. They form a widely experienced task force which can be reached via 24/7 hotline and ensures life-cycle support for all ANDRITZ nonwovens technologies.

The ANDRITZ GROUP

ANDRITZ is a globally leading supplier of plants, equipment, and services for hydropower stations, the pulp and paper industry, the metalworking and steel industries, and for solid/liquid separation in the municipal and industrial sectors. The publicly listed technology Group is headquartered in Graz, Austria, and has a staff of around 24,500 employees. ANDRITZ operates over 250 sites worldwide.

For further information, please contact:

michael.buchbauer@andritz.com
www.andritz.com



ANDRITZ neXline needlepunch eXcelle

Market News

Johnson Controls spins off automotives business

New automotive company will be named Adient

Johnson Controls, Inc., announced that Adient will be the name of its automotive seating and interiors business after the entity is spun off into a new publicly traded company in October 2016.

"Adient is a positive, powerful name that underscores our unique point of differentiation, namely, our ability to bring the right pieces together the right way, at precisely the right time, to deliver the best value for our customers," says Bruce McDonald, current Johnson Controls vice chairman and future chairman and CEO of Adient. "Adient is a Latin word that translates to accepting and advancing a situation or a stimulus, which is representative of our constant drive to engage, compete and always improve."

The Adient name was announced on Tuesday by McDonald as part of his presentation to investors at the Deutsche Bank Global Auto Industry Conference in Detroit, MI.

"The announcement of our new name is the first step on our journey to launch our new brand and to defining our future as a successful, independent company," McDonald says. "It is our mission to set the standard as a world-class automotive seating supplier through leadership in cost, quality, launch execution and customer satisfaction. We will leverage our capabilities to drive growth, both within and beyond the automotive industry."

In his presentation, McDonald said he expects Adient to implement new strategies that will drive higher levels of growth and profitability as well as strong cash flows. He said Adient will increase its investments in innovation in order to gain share and increase value to customers and shareholders.

Adient expects to disclose detailed financial information in late March or early April with the filing of a Form 10 Information Statement with the U.S. Securities and Exchange Commission. Once filed, a copy of the form

will be made available on the Investors page of www.johnsoncontrols.com and after October 1, 2016, on www.adient.com.

Adient common stock will be traded on the New York Stock Exchange under the ticker symbol ADNT. The first day of trading is expected to be Monday, October 3, 2016. (Source from: "www.nonwovens-industry.com")

Edson to launch Raptor SL automated case packer

Solution created for small to mid-sized companies in the at-home and away-from-home tissue industry

Edson Packaging Machinery, powered by Pro Mach, will introduce at Tissue World 2016, March 15-17 in New Orleans, the Raptor SL, a high performance automated case packing solution for small to mid-sized companies in the at-home and away-from-home tissue industry. This new machine enables tissue suppliers to boost production and support increased sales while lowering packaging line labor costs.

The new Raptor SL is an all-in-one fully integrated side-load machine that erects, packs, and hot-melt seals up to 12 cases per minute of at-home and away-from-home bath tissue, paper towels, napkins, and facial tissue. The Raptor SL will feature ProTech by Pro Mach the new cloud-based remote tech support and machine monitoring capability that ensures peak performance and throughput.

"The Raptor SL allows small and medium sized suppliers in the at-home and the away-from-home tissue markets to affordably step up to higher output and productivity through integrated case erecting, packing, and sealing," says Jeff Werner, vice president and general manager at Edson. "Some low-volume operations may be able to route two or even three lines into the Raptor SL for greater overall throughput with less labor. Tissue World 2016 attendees can see the Raptor SL in action and discuss with knowledgeable Edson personnel how this automated solution can support company growth and profitability."

The Raptor SL lowers end of line labor costs

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by reducing both the number of workers and overall time associated with case packing. Loading knock-down flat (KDF) corrugated cases onto the infeed conveyor is fast and less labor intensive than many other automated case packers. With an optional extended infeed conveyor, more than a half-dozen skids containing KDFs may be staged. Based on the speed of production, the extended conveyor can potentially lead to hours of labor free loading. The Raptor SL automatically loads each new stack while continuing to run, promoting maximum uptime. Operators can easily select for KDF dunnage or zero dunnage loading from the infeed. This gives the operation flexibility in the use of KDFs.

Changeover between stock keeping units (SKUs) can be accomplished in as little as 15 minutes and does not require tools. Edson also offers an option based on servo technology that performs rapid, fully automatic changeover. This option was developed for packaging lines with numerous SKUs.

Operators can access vital machine functions and information from a touchscreen interface, including recipes for various SKUs, alarm settings, production data, and maintenance documentation – print, diagram, and video. The Raptor SL offers fully integrated safety motion control.

The security and redundancy engineered into the ProTech by Pro Mach cloud-based tech support and monitoring solution is comparable to that utilized by the world's largest corporations. ProTech remote monitoring levels the playing field between small to medium sized companies and large ones in terms of providing organizations with the ability to optimize machine performance based on real time overall equipment effectiveness (OEE) data. ProTech reporting supports the continuous improvement and greater competitiveness of the packaging line. ProTech by Pro Mach's tech support functionality reduces service time when a machine is down from days, in the case when a technician has to be dispatched to the packaging line, to a matter of hours or minutes through state-of-the-art remote diagnostics.

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

American Roller purchases Nordson product lines

Deal includes XALLOY DuraShell and EquaTherm chill roll

American Roller Company has expanded its product and technology offering through the acquisition of Nordson's XALLOY DuraShell and EquaTherm chill roll product lines. Terms of the deal were not disclosed.

"This strategic move enables American Roller to build on its strong industrial roller product line history and expand into additional end markets," said Dan Cahalane, resident of American Roller. "We are committed to serving customers for these high quality product lines while employing our engineering resources to drive further product enhancements."

American Roller has assumed all quoting, engineering and manufacturing responsibility for the product lines, effective immediately.

"We're committed to a smooth transition of these product lines to American Roller, whose expertise will drive significant value for customers over the long term," says Steve Purcell, Nordson vice president for polymer processing in North America, "Going forward, Nordson will continue to focus its resources on our full line of barrels, screws, pumps, screen changers, dies and other melt stream components for customers in the global polymer processing industry."

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

Berry Plastics restructures post Avintiv acquisition

Nonwovens business to be grouped with hygiene films; Tracey to head business

Berry Plastics is keeping its latest purchase-Avintiv-pretty much in tact. During a fourth quarter earnings call, company executives announced that all of Avintiv, the nonwovens producer acquired this fall, would be contained within its new health, hygiene and specialties division. This division will be led by 11-year Avintiv veteran Scott Tracey. The remainder of the Berry businesses will be grouped into two other divisions-consumer packaging and engineered materials.

The health, hygiene and specialties business

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will represent 35% of Berry Plastics' sales. In addition to the nonwovens operation, the division will contain Berry's films businesses targeting personal care applications. About half of the new division's sales are within North America while 23% are in Europe, the Middle East and Africa; 10% are in Asia-Pacific and 16% are in Latin America. Conversely, Berry's sales outside of this unit are heavily weighted in North America—all of consumer packaging sales are in North America while the region represents 91% of engineered materials' sales.

This global reach was one of the top reasons executives say Avintiv was attractive to Berry Plastics. Avintiv has 23 locations in 14 countries in North America, Europe, Latin America and Asia.

"The acquisition expands our global reach and accelerates our growth in developing markets," says CEO Jon Rich who calls the reorganization a new chapter in Berry's company history. "It also benefits our consumer packaged good customers around the world."

Following the Avintiv deal, 40% of Berry's sales in growing personal care market and 80% are in stable, consumer-oriented markets. The company now has 13,000 customers, the largest of which represents less than 4% of total sales. Berry and Avintiv share several key customers in the hygiene space including many major diaper, feminine hygiene and adult incontinence manufacturers.

In fact, the integration of the two companies is expected to achieve cost savings of \$50 million, \$30 million of which is expected in 2016. "We remain optimistic that we will overdrive this number as Berry has done with previous acquisitions," Rich adds.

A key component of these savings will be in resin sourcing—the deal has made Berry one of the biggest customers of polypropylene resins in the world. Together the two companies source just under two billion pounds of the material annually.

For fiscal 2015, Avintiv reported independent sales of \$1.9 billion. This included a 2% gain in North America as well as advances in both Latin America and the Asia-Pacific. The acquisition brought Berry Plastics' total sales to \$6.7 billion.

With the reorganization, Avintiv CEO Joel Hackney announced he would leave the company to pursue other interests. Hackney had served at the helm of Avintiv since 2013 and led it through a series of acquisitions and investments that ultimately made it the world's largest producer of nonwoven fabrics. (Source from: "www.nonwovens-industry.com")

Wipes in Brazil

Focus on innovation and affordability in the battle to increase market penetration

Brazil has been rising steadily through the ranks of the leading global disposable hygiene markets with retail sales growing from \$2.7 billion in 2000 to \$4.6 billion in 2014. However, within the otherwise sizable hygiene marketplace in the country, wipes remain underachievers.

In developed markets like the U.S., personal wipes accounted for a 14% value share of total retail disposable hygiene products sales in 2014. In Brazil, on the other hand, personal care wipes accounted for a 7% value share in the same year, while home care wipes sales remained a niche category. Nonetheless, while still small in actual value, personal wipes in Brazil has recorded double-digit growth during the past few years, rising by 12% CAGR in constant U.S. dollar value compared to 2009-2014. This compares favorably with only 1% CAGR pulled in over the same time by a far more mature wipes category in the U.S.

Increased power of the middle class consumer as well as continuing product development efforts have created a good platform for category growth in the country. At the same time, however, high product prices present an obstacle to wider consumer adoption and market penetration.

Innovation and price sensitivity shape up the marketplace

In 2014, baby wipes accounted for the lion's share of the personal wipes retail sales in

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the country. In fact, Brazil is one of the few developing markets (along with Mexico) with a sizeable baby wipes category. However, at \$311 million in retail sales in 2014, the category's value is still low compared to the money spent on nappies/diapers/pants. In 2014, Brazil's spending on baby wipes was around 13% of its total spending on nappies/diapers/pants, compared with 26% in the U.S. and 35% in the U.K.

Baby wipes are complementary to diapers, and diaper manufacturers tend to have wipes in their portfolio to build brand loyalty the across baby care regiment. Furthermore, the industry continues to invest into more sophisticated products to attract parents' attention and drive demand. Recent new launches in Brazil's baby wipes market included Pampers Sensitive as well as a widening range of baby wipes by Johnson & Johnson—from those suitable for newborns to wipes with calming aromas and moisturizing properties. The Brazilian market also attracted product manufacturers like the France-based Laboratoires Expanscience, makers of the higher priced dermatological brand Mustela which carries a range of products to cleanse baby's face and body as well as products used during diaper changing.

While active product development certainly supports the increased use of baby wipes, their relatively affordable prices also play a role in wider consumer acceptance.

Falling significantly behind baby wipes in actual value sales, at \$21 million in 2014, are cosmetics wipes, which in Brazil consist mainly of facial cleansing wipes. These products typically target women from middle-upper classes with higher disposable incomes while the overall market penetration remains low. In 2014 the category growth had been far less impressive compared to baby wipes. High price is among the key inhibitors to broadening the demand for these products, especially in the changing climate of Brazil's slowing economy and shaky consumer confidence. In 2014, baby wipes retailed for an average of three to four cents per wipe (at 2014 fixed exchange rate). New products, such as Pampers Sensitive, did carry a higher price point of 11 cents per wipe. This, however, is still significantly lower than an average price of facial cleansing

wipes, at three cents and over. Considering various cheaper alternatives widely available to remove makeup and impurities, such as liquid cleansers, facecloths and cotton pads, consumers in Brazil consider wipes a luxury rather than an essential product for their daily face cleansing routine.

The second fastest growth in wipes in the country was achieved by general purpose wipes, with 7% value increase (in U.S.\$ constant value terms) in 2014, over 2013. These wipes are marketed and used for hands, face and body, at home or on-the-go. Convenience, coupled with better pricing compared to facial wipes, helped to secure more consumer purchases.

Affordability and further product segmentation to support consumer adoption.

Wipes in Brazil will continue to gain traction, with expected growth of 11% CAGR at constant 2014 prices over the next five years. Baby wipes, general purpose wipes and facial cleansing wipes will remain the key product categories. However, there is certainly room for further product segmentation and differentiation to expand consumer reach.

High price point has been a stumbling block to wider wipes usage and price sensitivity becomes particularly important considering economic problems the country is facing. Over the last decade, Brazil has become a linchpin of developing market growth for many leading hygiene products manufacturers, such as Kimberly-Clark and Procter & Gamble, which have tapped successfully into the country's rapidly growing middle class population. However, the good times have now stalled, with far reaching implications across consumer goods industries.

With increased focus on price, evolving private label wipes are likely to gain more prominence in Brazil. In 2014, private label wipes in the country registered an impressive 30% increase in value of sales. Manufacturers of private label products have been developing more expertise, thereby providing retailers with a wider range of products of improved quality that help to draw shoppers' attention and compete successfully with

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top players. The value and development of economy product ranges will be strongly on the agenda in 2015 and the following years. However, further product segmentation and differentiation as well as strong marketing activity should not be neglected to support long-term steady growth. In cosmetic wipes products developed and marketed to men can be one area to consider. Men's grooming products have seen significant growth in Brazil, including men's toiletries like bath and shower, skin care and deodorants.

On the whole, men in Brazil still mainly spend on more traditional grooming products, such as shaving. However, robust growth seen by toiletries, coupled with product development that sees men's specific lines of skin and bath care expanding on store shelves, are indicative of the growing interest in products outside of traditional grooming and open up opportunities for personal care wipes designed for and marketed to men. Looking at other markets where such developments have taken place can help to assess and design strategies for the category in Brazil.

For instance, in 2012 Dude Products in the U.S. introduced Dude Wipes, aimed specifically at male consumers who may not have time for a shower between work, the gym and social events. According to the company, its wipes are for cleaning faces, hands, armpits and 'dude regions.' The products are now distributed online and through specialty stores, to generally positive consumer reviews. In 2013 Dude Wipes won the Visionary Award at the Vision 2013 Consumer Products Conference in the U.S. With grooming and pampering on the rise among younger men, this type of innovation can help further expand the wipes category. However, it requires innovative thinking and investment into product development and marketing to secure consumer acceptance. (Source from: "www.nonwovens-industry.com")

Glatfelter announces plans to build new advanced airlaid materials facility in The U.S.

YORK, Pennsylvania – December 10, 2015 – Glatfelter (NYSE: GLT) announced today that it will invest approximately \$80 million to build a new production facility in the United States for its Advanced Airlaid Materials business (AMBU). The Company is currently

evaluating location options, primarily in the southern United States.

"Our Advanced Airlaid Materials business is a global growth platform that has a unique opportunity to capitalize on increasing and unmet demand in North America for the materials used in lighter-weight hygiene and disposable wipes products," said Dante C. Parrini, Chairman and Chief Executive Officer. "Our plan to build this new facility is in direct response to customer needs for increased capacity in a tightening North American airlaid market."

The new facility is expected to have an annual capacity of approximately 22,000 short tons, increasing the Company's total global airlaid materials capacity to approximately 129,000 short tons. In support of market growth, the investment is supported by customer commitment to purchase a significant amount of the annual capacity. In addition, the new facility will establish a specialty asset base in the United States and create a center of excellence for other lighter basis weight products. The Company anticipates production will start in approximately two years and the project will be funded by a combination of cash on hand and its existing credit facility.

"We are planning to locate this facility in close proximity to several key customers and highly efficient transportation routes in the southern U.S., as well as where we have additional access to a high-quality, skilled workforce," said Chris W. Astley, Senior Vice President & Business Unit President, Advanced Airlaid Materials. "Identifying an optimal location for this facility will provide Glatfelter and its customers with logistics and supply chain benefits, and opportunities for collaboration. Our Advanced Airlaid Materials business enjoys excellent customer relationships, and we expect this new facility will provide us with additional competitive advantage to support long term growth."

Glatfelter's Advanced Airlaid Materials Business Unit has leading positions in the feminine hygiene, adult incontinence, wipes and home care markets globally, and its products are also used in food packaging and industrial applications. Its existing production facilities are located in Canada and Germany.

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Glatfelter is a global supplier of specialty papers and fiber-based engineered materials, offering innovation, world-class service and over a century and a half of technical expertise. Headquartered in York, PA, the company serves customers in over 100 countries. U.S. operations include facilities in Pennsylvania and Ohio. International operations include facilities in Canada, Germany, France, the United Kingdom and the Philippines, and sales and distribution offices in China and Russia. Glatfelter's sales approximate \$1.7 billion annually and its common stock is traded on the New York Stock Exchange under the ticker symbol GLT. Additional information may be found at www.glatfelter.com.



DuPont™ Thermo-Man® Test

protection for those most at risk, including firefighters, industrial workers, emergency response professionals and military personnel."

DuPont™ Thermo-Man®, a life-sized, instrumented mannequin covered with 122 heat sensors, is one of the most advanced thermal burn injury evaluation devices in the world. It was developed in conjunction with the U.S. Government to help protect the military personnel from burns.

"DuPont's investment in its Thermo-Man® testing facilities around the world ultimately benefits firefighters and other professionals whose lives depend on their personal protective apparel," said Russell Shephard, chairman of the International Organization for Standardization (ISO) subcommittee on firefighter PPE, and manager standards at Australasian Fire and Emergency Service Authorities Council (AFAC). "Thermo-Man®, which meets stringent international standards, effectively simulates what will happen to the wearer in a real-life setting, informing critical design decisions."



DuPont™ Thermo-Man®

DuPont expands thermal testing capability in Asia and Latin America New Thermo-Man® Facilities to Open in Singapore and Brazil

WILMINGTON, Del., Jan. 28, 2016 – DuPont Protection Solutions today announced it will add two new DuPont™ Thermo-Man® testing facilities in Brazil and Singapore in 2016, increasing its capacity to test and analyze the performance of protective apparel exposed to sudden fire, an ever-present risk in multiple industries the company serves. The new facilities bring the total number of DuPont™ Thermo-Man® proprietary testing labs to five worldwide, including those currently in service in the United States, Switzerland and the United Arab Emirates, enabling innovation and product development with customers in all regions.

DuPont continues to be a world leader in the science of heat and flame protection, delivering trusted products such as the leading flame-resistant fiber, DuPont™ Nomex®, coupled with state-of-the-art testing that is consistent with global standards, training and product selection tools, to its customers across industries.

"These investments to expand our global network of thermal testing and innovation centers will further enhance our ability to serve customers," said Rose Lee, DuPont Protection Solutions president. "We will be poised to support the development of more advanced fabrics, as well as advancing our own fiber technologies, which will increase and broaden the levels of flame-resistant

DuPont™ Nomex® is known worldwide as the leading flame-resistant fiber. More than 3 million firefighters, as well as workers across the manufacturing, chemical, oil and gas industries, emergency response and armed forces personnel, depend on its thermal protection to help keep them safe. Nomex® fiber can help enable protective apparel to have the lowest possible weight at the highest level of protection, breathability for reduced heat stress, and the ability to effectively wick away moisture. In addition to personal protection, Nomex® is used in mass transit systems, wind energy, transformers, filtration, hoses and aircraft. For more information about DuPont™ Thermo-Man®, visit: <http://www.dupont.com>.



DuPont™ Thermo-Man® Test in Progress

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Five myths to flush down the toilet

INDA tackles the issue of flushability in wipes. Flushable wipes increasingly are being sought by consumers for their convenience and effectiveness – yet blamed for wastewater woes. What's the real problem and how can the nonwovens industry work together with the wastewater sector and others to find solutions? Let's begin by looking at common misconceptions about flushability in wipes.

Myth #1 - ONLY wipes are to blame

Reality: Consumers are flushing many items that were never designed or marketed to be flushed.

Myth #2 – Flushable wipes shouldn't be flushed

Reality: Wipes that are engineered to be flushed and pass the INDA/EDANA assessment tests can be safely flushed into properly designed, maintained and operated municipal sewer systems and septic systems.

In the wipes category, 93% of wipes sold are not designed to be flushed, not marketed to be flushed and contain disposal instructions to not flush. These non-flushables include baby wipes, hard-surface cleaning wipes, anti-bacterial wipes, facial wipes and many other kinds of wipes.

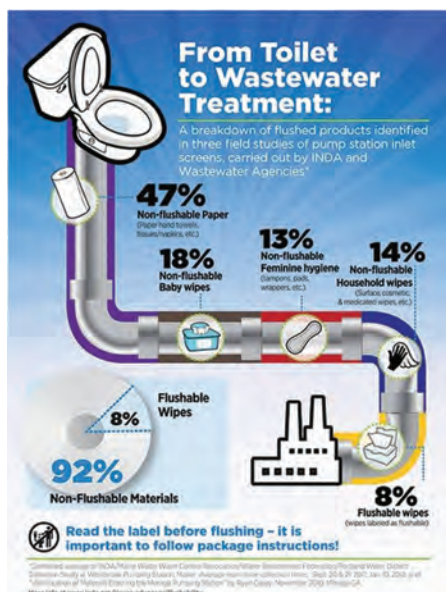
But the 7% of wipes that have been specifically designed to not harm wastewater systems and are marketed as being a flushable supplement to toilet paper can indeed be safely flushed and not cause harm.

These highly engineered items are made largely of natural cellulosic fibers that are much shorter in length than fibers in other wipes. The short-fiber wipes hold together to get their job done and then lose their integrity when flushed and conveyed through the wastewater system, becoming totally unrecognizable from toilet paper debris in their final state.

Flushable wipes also undergo a rigorous Flushability Assessment Testing process with seven tests to ensure safe transit and full disintegration in wastewater systems in order to receive the industry's "flushable" designation (see INDA.org/flushability).

These tests are developed by industry experts who have the extensive R&D resources, experience and technical ability necessary to effectively address the issue. INDA is currently drafting the fourth edition assessment tests in an effort led by a committee that includes wastewater representatives from the leading associations of the wastewater sector (WEF, NACWA, APWA, CWWA). The target publication date for the revised testing assessments is June 2016.

Myth #3 – The Industry isn't doing anything about it



Forensic studies done in collaboration with wastewater representatives show approximately 90% of the items being found on Materials outside of flushable wipes are the main contributors to clogs, studies have shown.

wastewater screens are not engineered nor marketed to be flushed: paper towels, napkins, baby wipes, feminine hygiene products and wipes for cleaning and disinfecting. The real issue is that consumers are flushing too many items that were never designed or marketed to be flushed.

The biggest culprit is paper towels, which consistently made up the largest portion of the debris, accounting for almost 50%. This was followed by baby wipes (meant to be rolled up in a diaper and thrown in the trash), then feminine hygiene products and then household and personal care wipes.

Items that could be identified as flushable wipes accounted for only 8% of the debris collected in screens, and even that is primarily due to the accumulation effect taking place once a blockage has started. Even pieces of toilet paper can be found in that blockage. Flushing items not designed to be flushed is not a problem that can be solved by focusing on only one product, industry or company.

We're confident collaboration and education will lead to a solution, and we remain dedicated to meeting that goal.

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Reality: INDA is collaborating with manufacturers, the wastewater sector, retailers and communities to build awareness about safe disposal practices. INDA and its members are leading the charge on addressing this issue. And we'll soon be reaching out to other industry groups representing non-wipes products in the 90% of the debris causing the problems.

INDA's dialogue with the wastewater sector began in 2003 and stepped up in 2012 with the major wastewater associations to focus the public's attention on properly disposing of, or not flushing, the 90-plus percent of items that are really causing the clogs in wastewater systems.

Together, we are also working to further strengthen the Flushability Assessment Testing that products must pass in order to qualify as "flushable" and be marketed as such. INDA and wastewater have come a long way in educating each other and working toward a solution.

Myth #4 – Consumers don't follow instructions

INDA is encouraging wipes makers to properly label wipes so consumers know what should be flushed and what should not.

Reality: Public education and well-designed consumer packaging can be highly effective in reducing the burden of non-flushables.

Educating consumers about the proper disposal of flushable and non-flushable products does reduce the burden for wastewater. In Portland, ME, the numbers of baby wipes flushed dropped substantially immediately following INDA's joint education campaign with municipal wastewater interests, research shows.

Consumers also recognize and understand the "Do Not Flush" symbol on product packaging. According to research, 94% of consumers know instantly what this symbol means. INDA and its members also have worked with brand owners to increase the visibility of this symbol on packaging. Consumers want to do the right thing and, given

the right information, we believe they will.

Myth #5 – Regulations and standards are the answer

Reality: The industry is in the best position to improve its products and respond with speed and agility.

Bills such as the one in Maine, defeated earlier this year, focus on the wrong target and are misguided. New York, New Jersey, California, Washington state and Canada are among jurisdictions also considering legislation. We believe education, not legislation, is the better solution.

Denying consumers the flushable category altogether would make the problem worse: consumers will replace flush-friendly products with others NOT engineered to be flushed. Flushable wipes meet real hygienic needs for consumers—they deserve choices and the right to make informed decisions about product purchases.

Finding a Common Solution

This issue can be solved by many groups working together: INDA, consumers, manufacturers, brand owners, wastewater entities and communities. In our industry, we need to work to establish compliance by all brand owners of wipes of every kind to abide by our Code of Practice. We would also like those involved with paper towels and feminine hygiene products to use the "Do Not Flush" symbol as well. In addition, the progress and collaboration with wastewater associations and other groups must continue. And lastly, continued education and public outreach initiatives are needed to raise awareness about safe disposal of products used in a bathroom and spread the message that the toilet is not a trash can.

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

The feminine hygiene market

Manufacturers of femcare products are overcoming growth challenges with marketing, education and new technologies. Challenges in the feminine hygiene market have remained the same over the last several years. In developed regions like the U.S. and Western Europe, makers of these products have had to deal with high penetration levels, as well as an aging population that will



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mature out of using pads and tampons. In emerging markets where penetration is low, manufacturers are seeking ways to establish growth among areas in the developing world where the topic of menstruation can be considered taboo. Despite these setbacks, companies are finding ways to keep the market growing.

According to market tracker Euromonitor International, the sanitary protection category has grown at a CAGR (compound annual growth rate) of 3.10% (in U.S. dollars, constant value) on a global scale from 2009-2014, and this growth is thanks to the emerging markets.

In fact, according to Euromonitor, China leads the pack in terms of its CAGR in the sanitary protection space, with 8% growth (U.S. dollars, constant value) over the 2009-2014 time period. Following are Russia at 2% and Brazil at 0.8%. Together, in terms of value, the emerging markets are expected to grow 5% annually from 2014-2019. On the other hand, CAGR in the developed countries fell -1.07% from 2009-2014, and the value of sanitary protection is only expected to grow 0.2% annually in these highly saturated markets from 2014-2019.

While China has seen the most growth, Uduislaiva points out that the world's most populous country is approaching its saturation point. One of the factors contributing to China's growth is higher disposable income for women in the country. This higher disposable income "explains some of the tendencies in terms of product development. In China, we're still seeing strong emphasis on mid-price to high-premium products and there are strong preferences on the consumer side for this type of product," Uduislaiva notes.

In India, where per capita consumption is still falling behind markets like China, there are many traditional inhibitors of using sanitary protection that influence women, she says. "This is where we see a lot of work done by manufacturers working with local communities to improve women's education [and] social status of women to educate them about the use of modern hygiene practices."

Disposable income is also a challenge in India; therefore expansion among brands in the economy/lower-priced segment is expected. "[This] doesn't necessarily mean they're bad quality, they're just really competing on price points and helping to really increase product use among women with lower disposable incomes," Uduislaiva explains.

When it comes to education in the developing world, SCA, a global leader in the absorbent hygiene market, is just one of the brands that is promoting menstrual education.

Since 1989, the company has put forth major efforts to combat misinformation on menstruation and inaccessibility to products by offering feminine hygiene education sessions to countries all over the world.

According to SCA's 2014 sustainability report, 12 million girls and women—from countries in Latin America, Asia and Europe—have participated in this program since the sessions began. According Harold Smolders, vice president communications, SCA Incontinence Care Europe and Global Hygiene Category, all sessions are conducted locally, and in Colombia alone, 900,000 girls have attended the company's programs. "During these sessions girls were educated about what happens to their bodies during puberty and when they have their period," he says.

In developing nations, various religious, cultural or traditional beliefs have led to many misconceptions surrounding menstruation. Citing the 2013 WaterAid Global Annual Report, Smolders says half of the girls in Iran and one in 10 girls in India believed menstruation was a disease. "The same study revealed that one out of three girls in South Asia knew nothing about menstruation prior to experiencing it," he adds.

As part of its efforts to eradicate misinformation about menstruation, SCA began a partnership with the UN Water Supply and Sanitation Collaborative Council (WSSCC) last year. "Through this partnership, SCA aims to break the menstrual taboos that jeopardize the health of millions of women every day and raise awareness of the importance of good menstrual hygiene," Smolders says.

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SCA has held joint training sessions with WSSCC for girls in South Africa and China over the last year.

Additionally, in developing markets, the company has been improving the distribution of feminine products to mom and pop-type shops, offering a more economic product assortment, and offering smaller pack sizes to improve the affordability and accessibility of feminine care products to women in the poorer regions of the developing world, Smolders says.

Meanwhile, in developed countries, manufacturers are doing their best to maintain brand loyalty through specific marketing tactics. The first is through “premiumization,” according to Uduslivaia. One way brands are doing this is by promoting their latest technologies that make products more comfortable, yet more efficient in preventing leaks. Secondly, packaging has increasingly been made more appealing, interesting and colorful so that it stands out on the shelf, she says.

Another strategy among retailers and brands is linking feminine care with light incontinence products. More and more retailers are displaying femcare products and light incontinence products side by side, Uduslivaia says. “This is something that’s really an attempt by the manufacturers and brands to really build loyalty across different life stages, which essentially is one of the strategies to really maintain growth and revenues in the conditions where really the demand for sanitary protection is pretty low because of the demographic shift, because of the market saturation.”

Feminine care brands are also coming out with products for adult incontinence under the same brand name. An example of this is the recently introduced Always Discreet.

The line, which launched in August 2014, consists of liners, pads and underwear designed to offer comfort, protection and discretion, in a feminine design, that absorbs leaks and odors quickly. Always Discreet liners are for light leaks, pads are for light or moderate leaks and pants/underwear are

for larger leaks. “Everyone knows Always pads for period protection – and now we introduced their cousin for bladder leak protection,” says Laura Goodman, MS, senior scientist, P&G.

According to P&G, Always Discreet pads are up to 40% thinner than the leading brand and absorb twice as much fluid as women may need, based on the average consumer usage of incontinence products. Always Discreet products also contain an exclusive OdorLock technology that neutralizes odors instantly and continuously.

“Always Discreet has been developed over several years and draws on extensive product and technical development as well as consumer research involving thousands of women worldwide,” Goodman says.

While it appears that Always Discreet is seeing some success—it was recently selected as a finalist for the Visionary Award by INDA, the Association of the Nonwoven Fabrics Industry—only time will tell if consumers cling on to the idea of brand loyalty across the two different categories. “There are some markets where consumers really like to differentiate the brands and they know that there are brands that are experts in sanitary protection, there are brands that are experts in incontinence management, so the crossover does not always work in every market,” Uduslivaia says.

A Bounty of New Products

Another way brands are attempting to maintain growth is by introducing new products with the latest technologies, and over the last year a spate of new femcare items were launched.

The top company in sanitary protection, Procter & Gamble, launched Tampax Pocket Pearl earlier this year. The new tampons are a pocket-sized version of Tampax Pearl that offers girls discretion and protection.

The new soft wrappers offer a perforated edge for easy opening with quiet and discreet technology. The smaller tampons also fit into the palms of a hand and take up little

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room even in the smallest handbags for convenience and discretion. Tampax Pocket Pearl is also the only compact tampon with the unique Built-In Backup Braid designed to send fluid back into the core, providing protection in a way some tampons don't. This extra layer of protection helps capture leaks that would normally bypass other tampons, keeping fluid locked into the core. Additionally, new FormFit technology better eliminates the gaps that cause leaks and give women an extra layer of protection.

Also, in sync with the trend of using attractive, catchy designs, Tampax Pocket Pearl tampons feature four wrapper designs that were co-created by teen girls and offer a stylish alternative in feminine hygiene options. The looks were based on the latest pattern, color, graphic and runway trends.

Meanwhile, Kimberly-Clark has debuted some items under its U by Kotex brand this year. This summer, it launched U by Kotex Security Ultra Thin pads. The pads feature a 3D Capture Core, a one-of-a-kind center that locks away wetness to help stop leaks, along with the new Xpress DRI, a cover with fast absorption. The 3D Capture Core and Xpress DRI cover are also found on U by Kotex CleanWear Ultra Thin pads. Both pads include uniquely shaped wings for a secure fit and an ultra thin, four-layer absorbent system for "seriously dry protection."

In the land Down Under, Kimberly-Clark Australia and New Zealand launched U by Kotex Sport Ultrathins, thin and flexible pads designed specifically for women who enjoy keeping fit, having fun and leading an active lifestyle, but are concerned that their current pad doesn't provide the protection they need.

The new product is designed specifically to protect women during sport. With a super-absorbent Flexfit Core that has been shaped to mold and contour to the body as it moves, the new Ultrathins are designed to keep women comfortable and protected during even their most vigorous workout. Additionally, the Sport Ultrathin pads have "stay in place" wings, and a breathable quick-dry cover that is noticeably thinner and discreet.

K-C Australia's Sport Ultrathins are the second product in its U by Kotex active range, joining U by Kotex Sport Liners, which were launched in 2013 and are designed for out of period use to help keep women fresh and dry during workouts.

Also targeting the athletic woman is Edgewell Personal Care's (formerly Energizer Personal Care) Playtex brand. The brand launched its first ever ultra-thin pads and liners designed with Sport Level Protection to the feminine care market under the Playtex Sport moniker. The brand had previously come out with Playtex Sport Tampons with 360° Sport Level Protection.

The ultra-thin pads and liners offer innovative technology including a thin and flexible FlexFit design that twists and turns with the body, OdorShield technology that neutralizes odors before they start, and Qwik-Dry technology that quickly pulls in fluid and wicks moisture away, allowing women to feel dry, fresh and confident.

The brand is also offering convenient combo packs in two varieties: Sport Tampons and Liners and Sport Tampons and Pads.

This year, SCA made enhancements to its liner portfolio. According to Smolders, the products were made more breathable and a mild lactic acid was added to maintain users' pH balance. "This means that our liners today are not only about protecting your underwear, but they can also protect your intimate skin," he says.

Late last year, the Swedish company also launched an innovative hygienic disposal solution across its ultra-towel range called "Roll.Press.Go" in an effort to make the disposal of sanitary products more discreet. The Roll.Press.Go wrapper has self-sealing edges on all sides. When rolling up a used pad in the wrapper, and then pressing the edges to seal it in, the pad will be tightly secured on all sides when it's thrown away or brought along.

Seeing More Cotton

With an increasing number of women seeking

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more products considered natural or healthy, cotton's place in the feminine hygiene segment has continued to grow in recent years. Corman, the Italian manufacturer of the Organyc range of feminine pads, tampons, panty liners and more, claims to offer the first complete certified organic range of feminine care products.

Corman's use of cotton, and more specifically GOTS (Global Organic Textile Standard) certified organic cotton, comes as a result of developing market trends, according to Paola Stevan, marketing manager Hygienic Brands, Corman. "As consumers move toward a greater involvement with health and wellness, there has been an effect on attitudes and behaviors. Consumers care more about their bodies, focusing on diet and nutrition, natural and organic foods, goods and textiles. In addition consumers care more about their immediate environment. This is evidenced by an increase in consumption of organic, natural, recycled and energy-efficient devices, clearing and building products," she explains.

Stevan says a 100% cotton pad provides better breathability compared to a pad made without cotton, and it is hypoallergenic thanks to its topsheet that's made of 100% nonwoven cotton. Organyc's pure 100% cotton core has high absorbency and wings that guarantee maximum protection.

The cotton used in the Organyc femcare line is grown without artificial pesticides, working in harmony with the environment to support biodiversity using a natural pest management system, Stevan adds.

Most recently, Organyc has launched two new products for new moms: First Days Maternity Pads and Nursing Pads. First Days Maternity Pads are made of 100% organic cotton, specifically created for a woman's delicate skin after childbirth. They offer ultra-absorbency for heavy flow in the first days after delivery. The pad's breathable and biodegradable protective film allows air to circulate, helping to heal and reduce the risk of infection. Organyc's 100% organic cotton nursing pads are naturally absorbent, breathable and comfortable, according to the company.

Organyc's newest competitor in the U.S. is the Honest Company, which launched a full range of GOTS certified organic cotton feminine care products this summer. Honest's feminine care line includes pads, liners and tampons. The new ultra-thin pads are naturally soft and breathable for maximum comfort, and are available in regular and super absorbencies, while the liners are available in a standard size and in a thong option. Honest's tampons are available with or without a compact plant-based applicator and expand in all directions for a more natural and secure fit and enhanced leak protection.

According to the Honest Company, the organic cotton used provides uncompromised quality and premium natural absorbency that quickly locks in wetness for reliable protection and pH compatibility.

The new feminine care line is hypoallergenic and is made without rayon, fragrances, deodorants, dyes, phthalates, pesticide residues, glycerol tricaprylate, chlorine or chlorine dioxide processing. (Source from: "www.nonwovens-industry.com")

Catbridge introduces heavy-duty surface winder

New winder offers shortened production cycles

Catbridge Machinery introduces a new heavy-duty surface winder designed to significantly increase productivity and safety. Time-saving features shorten production cycles and allow more jumbo rolls to be processed per shift. These features include a rugged shaftless floor pickup unwind, high-capacity hydraulic systems, web threading and core positioning assists, core diameter presets and a streamlined finished-roll discharge process. In addition, a comprehensive safety system protects machine operators throughout the slitting and rewinding process. This system uses risk-reducing designs as well as devices such as a safety PLC, guards and sensors. Besides throughput and safety advantages, the 215 surface winder offers a wide range of tension control for handling very heavy to very lightweight materials. The 215 runs at speeds to 4000 fpm and rewinds to a 60" diameter, with an optional rewind diameter to 84 inches.

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

Production of 2013-2015 nonwovens by technology

2015 Report about the development of nonwoven industry in China mainland

| Processing Technology | 2013 | | 2013/2012 | 2014 | | 2014/2013 | 2015 | | 2015/2014 |
|--------------------------------------|---------------------|-----------|------------|---------------------|----------|------------|---------------------|-----------|------------|
| | Production (10,000) | Pcnt. (%) | Growth (%) | Production (10,000) | Pcnt.(%) | Growth (%) | Production (10,000) | Pcnt. (%) | Growth (%) |
| Spun-melt | 114.0 | 47.76 | +8.57 | 122 | 46.29 | +7.01 | 137 | 46.58 | +12.3 |
| Spunbonded (incl. S and M composite) | 110.5 | 46.29 | +8.33 | 118 | 44.78 | +6.79 | 132.5 | 45.05 | +12.28 |
| Melt-blown | 3.5 | 1.47 | +16.7 | 4 | 1.52 | +14.29 | 4.5 | 1.53 | +12.5 |
| Dry laid | 114.9 | 48.14 | +12.92 | 131.4 | 49.86 | +14.36 | 145.7 | 49.54 | +10.73 |
| Needle-punched | 57.5 | 24.09 | +8.49 | 63.5 | 24.09 | +10.43 | 68.2 | 23.19 | +7.40 |
| Chemical-bonded | 11 | 4.61 | +2.80 | 11.5 | 4.36 | +4.5 | 12 | 4.08 | +4.35 |
| Thermal-bonded | 13.3 | 5.57 | +9.02 | 13.4 | 5.09 | +0.75 | 13.5 | 4.59 | +0.74 |
| Spunlaced | 31.5 | 13.20 | +29.62 | 41.5 | 15.74 | +31.75 | 50.4 | 17.14 | +21.45 |
| Stitch-bonded | 1.6 | 0.67 | +3.22 | 1.5 | 0.57 | -6.25 | 1.6 | 0.54 | +6.67 |
| Air-laid | 8 | 3.35 | +2.56 | 8.2 | 3.11 | +2.5 | 8.4 | 2.86 | +2.44 |
| Wet-laid | 1.8 | 0.75 | +2.86 | 1.9 | 0.72 | +5.56 | 3 | 1.02 | +57.9 |
| Total | 238.7 | | +10.36 | 263.5 | | +10.39 | 294.1 | | +11.61 |

2015 Main end-uses of China mainland nonwovens

| Usage | 2013 | | 2013/2012 | 2014 | | 2014/2013 | 2015 | | 2015/2014 |
|--|--------------------|-----------|------------|--------------------|-----------|------------|--------------------|-----------|------------|
| | Production (1,000) | Pcnt. (%) | Growth (%) | Production (1,000) | Pcnt. (%) | Growth (%) | Production (1,000) | Pcnt. (%) | Growth (%) |
| Medical, Health care and hygiene, etc. | 910 | 38.12 | +15.62 | 1050 | 39.85 | +15.38 | 1196 | 40.67 | +13.90 |
| Wadding | 192 | 8.04 | +3.78 | 202 | 7.67 | +5.21 | 217 | 7.38 | +7.43 |
| Packing materials | 230 | 9.64 | +3.60 | 240 | 9.11 | +4.35 | 274 | 9.32 | +14.17 |
| Household wipes and Cleaning Materials | 233.4 | 9.78 | +14.41 | 269 | 10.20 | +15.22 | 318 | 10.82 | +18.22 |
| Geosynthetics | 140 | 5.87 | +7.44 | 145 | 5.50 | +3.57 | 151 | 5.14 | +4.14 |
| Substrate for Coating & Lamination | 77 | 3.23 | +1.32 | 80 | 3.04 | +3.90 | 84 | 2.86 | +5 |
| Roofing felt | 89 | 3.73 | +7.23 | 92 | 3.49 | +3.37 | 96 | 3.27 | +4.35 |
| Furniture interiors | 69 | 2.89 | +4.55 | 71 | 2.69 | +2.89 | 74 | 2.52 | +4.22 |
| Interlining | 46 | 1.93 | +2.22 | 47 | 1.78 | +2.17 | 48 | 1.53 | +2.13 |
| Shoe materials | 43.5 | 1.82 | +3.57 | 44.5 | 1.69 | +2.29 | 46 | 1.56 | +3.37 |
| Automobile interiors | 120 | 5.03 | +12.15 | 129 | 4.90 | +7.5 | 138 | 4.70 | +6.9 |
| Filter media | 150 | 6.28 | +13.46 | 175 | 6.64 | +16.67 | 206 | 7 | +17.71 |
| Agriculture use | 15.3 | 0.64 | +2.68 | 16.3 | 0.62 | +6.54 | 17.1 | 0.59 | +4.91 |
| Paper-making felt | 9.5 | 0.40 | -2.06 | 9.7 | 0.37 | +2.11 | 9.9 | 0.34 | +2.06 |
| The others | 62.3 | 2.61 | +5.77 | 64.5 | 2.45 | +3.53 | 66 | 2.25 | +2.33 |
| Total | 2387 | | +10.36 | 2635 | | +10.39 | 2941 | | +11.61 |

Area Report

In general speaking, the situation of 2015 China mainland's nonwovens production was totally smooth and stable, the output grew up to 11.61% compared with 2014, enterprises' profit tended less than before and some product segments were hard and difficult:

As per processing technology

1) dry-laid

- spunlaced production grew up to 21.45% compared with 2014 (hygienic, health care and medical products increase esp. exported products)

2) spunmelt production grew up to 12.3%, as wide width(7.2m)PET spunlaid+needle punching lines for geosynthetics & roofing felt and PP SMMS composite nonwovens new lines for medical, health care and hygiene etc. were putted in production in 2015.

3) Wet-laid production grew up to 57.9% compared with 2014, imported and localized wetlaid lines were putted in production as flushable hygienic nonwovens' demand and wetlaid nonwoven production lines with high ration of output/investment.

As per products usage

***- Medical, Health care and hygiene products grew up to 13.90%

- Household wipes and Cleaning Materials grew up to 18.22%

-filtration media grew up to 17.71%

- Atuo interior decoration products grew up to 6.9% because China Auto production in 2015 reached more 20 million.

Challenge and Opportunity

- industry, product and technology structure should be adjusted

- strengthening innovation (technical, market and sales model innovation.)

- increasing high added value's products production

*** huge developing potentiality of nonwovens as China's industrialized, citilized in large scale, sustainable & harmonized development strategies

China nonwovens industry will be grow up not only quantities but also quality and added values untill 2020

<<< Continue 27

According to the disclosed manufacturing process, a sandwich structure of two nonwoven facings with a center netting layer is first formed. The structure is then bonded and contracted using heat. Activation of the EVA adhesive in the netting is achieved at a temperature of about 85°C. Optionally, only one facing material may be utilized or two facings can be incorporated utilizing different materials. The working surface layer of the cleaning sheet can be produced from woven materials, nonwovens, paper webs, foams or battings. Preferred layers are produced from nonwoven webs having fibers or filaments randomly distributed or with a degree of orientation as in airlaid, wetlaid and carding processes.

Suitable soil adherence additives are oils such as mineral oil and petroleum jelly and waxes like various types of hydrocarbons, fatty acids and fatty alcohols. Useful animal and vegetable waxes are beeswax, carnauba, spermaceti, lanolin, shellac wax

and candelilla. Mixtures of oils and waxes are preferably applied at a 1:1 ratio and at a level of 4-6% by weight.

(Source from: Nonwovens markets)

<<< Continue 28

"Fluidshield ASTM-rated specialty masks represent an innovation born out of customer need for a surgical mask that combines specific performance and comfort features together with the ASTM rating for fluid protection for the operating room," says Lon Taylor, director of marketing, surgical & infection prevention, Halyard Health. "Our customers have relied on Kimberly-Clark Health Care and now Halyard Health to provide consistent and dependable products that are compliant with the latest standards, and we are proud to expand our face mask product line and be a singular source to best meet those needs."

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

The present situation of battery separator with nonwovens

Dr. Masanao Tanaka
Technical Development Dept.
Industrial Materials Div.
Japan Vilene Co., Ltd

- * About batteries
- * Alkaline secondly batteries (About Ni-Cd, Ni-MH) and separators
- * The application of battery separators (Ni-Cd, Ni-MH)
- * Production process of NWF (Nonwoven)
- * Importance of design alkaline battery separator
- * Raw material: Fibers (sheath core fiber, Split fiber, Super fine fiber)
- * Comparison of separator base materials
- * Type of hydrophilic treatment method
- * Relationship between of separator design and battery performance
- * Application for Li-ion battery

About batteries

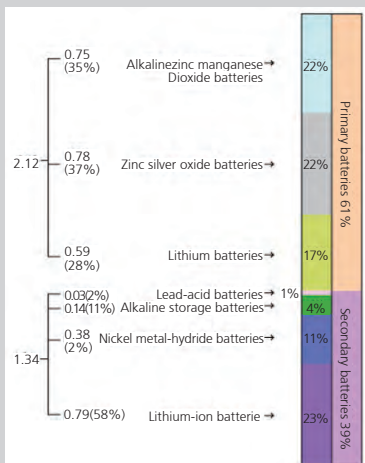
| | |
|--|--|
| Primary batteries: | used only intermittently |
| Zinc-carbon batteries | Paper(pulp) |
| Alkaline batteries | Paper (pulp), NWF |
| Secondary batteries: | Using many cycles by charging and discharging |
| Lead-acid | Paper(glass) |
| Nickel cadmium (Ni-Cd) | NWF |
| Nickel metal hydride(Ni-MH) | NWF |
| Lithium ion (Li-ion), lithium ion polymer (Li-ion polymer) | Membrane (NWF) |

History of batteries

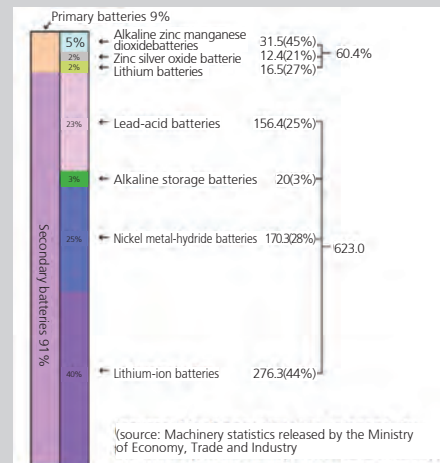
1800: Volta (Italy) invents the Voltaic battery.
1964: Ni-Cd production started in Japan
1990: Ni-MH battery production started in Japan
1991: Secondary type of lithium-ion battery production started in Japan

Total battery production statistics in 2013 (calendar year in Japan)

Total production by volume: 3.46 billion units (Unit:100 million)



Total production by value: ¥683.4 billion yen (Unit:100 million)



Alkaline secondly batteries (About Ni-Cd, Ni-MH) and separators

Ni-Cd

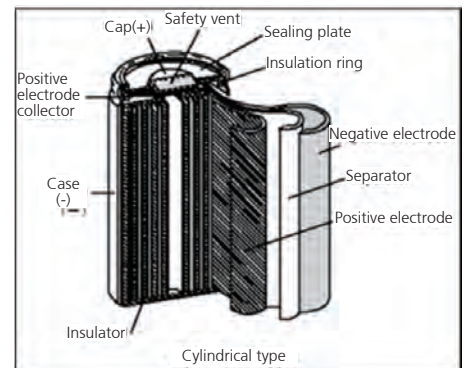
Positive : $\text{NiOOH} + \text{H}_2\text{O} + \text{e}^- \rightarrow \text{Ni(OH)}_2 + \text{OH}^-$

Negative : $\text{Cd} + 2\text{OH}^- \rightarrow \text{Cd(OH)}_2 + 2\text{e}^-$

Ni-MH

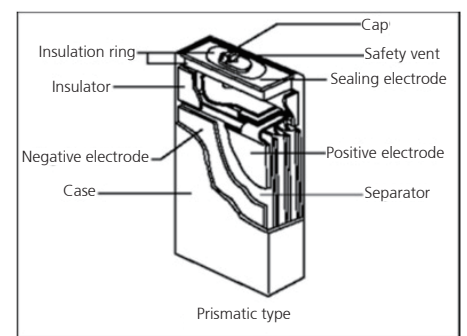
Positive : $\text{NiOOH} + \text{H}_2\text{O} + \text{e}^- \rightarrow \text{Ni(OH)}_2 + \text{OH}^-$

Negative : $\text{MH} + \text{OH}^- \rightarrow \text{M} + \text{H}_2\text{O} + \text{e}^-$



The points of development for separators as follows;

- 1) Good uniformity
- 2) Maintain strong tensile strength
- 3) High electrolyte retention
- 4) Good permanent wettability
- 5) Maintain resistance against short-circuit (when winding electrodes and separators)
- 6) Cost



The application of battery separators (Ni-Cd, Ni-MH)

Batteries for commercial use



Technology News

Batteries for electric power tools



Electrical-power-source batteries(HEV, Electric Bicycle)



Primearth EV Energy Co., Ltd.

Estimated global market of HV& EV(J. P. Morgan securities)



Development status by 2015

Ni-MN: Main battery for HV

Li-ion: Partial use for EV

Future after 2015

Ni-MN: Gradual decrease*

Li-ion: Main battery for HV and EV

- * Secondary battery separators (for nickel cadmium and nickel metal hydride batteries)
- * Portable equipment power sources (for mobile phones, digital cameras, DVD players, PDAs)
- * Battery separators (power source for power tools)
- * For mobility (battery separators for hybrid cars and power-assisted bicycles)

Development of alkaline battery separator

• The small secondary battery, high capacity and high energy density, is advanced and evolved significantly around 1990.

• High capacity battery needs to the increase volume of active materials and decrease volume of battery separator.

- Ni-Cd battery separator thickness : 150 μ m from 200 μ m.

- Ni-MH battery separator thickness : 100 μ m from 150 μ m

* For reduction of thickness : improvement of electrolyte retention and high strength base material

* For avoid self discharge of battery capacity: change the kind of fiber

Nylon \rightarrow PO fiber with hydrophilic surface treatment

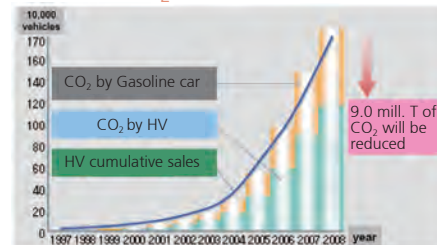
\rightarrow Development of PO base materials, suitable surface treatment



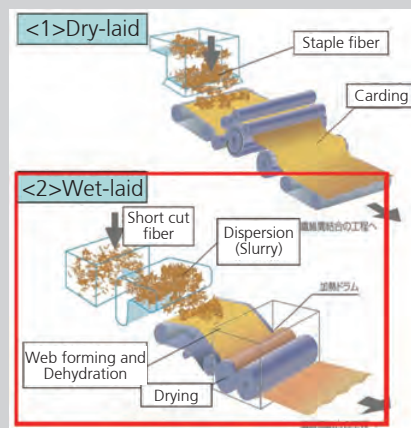
TOYOTA Motors. CO₂.

HV 1.7 mill. cars reduce CO₂ by 9.0 mill. t

HV Lead CO₂ reduction



Production Process of NWF (Fleece forming)

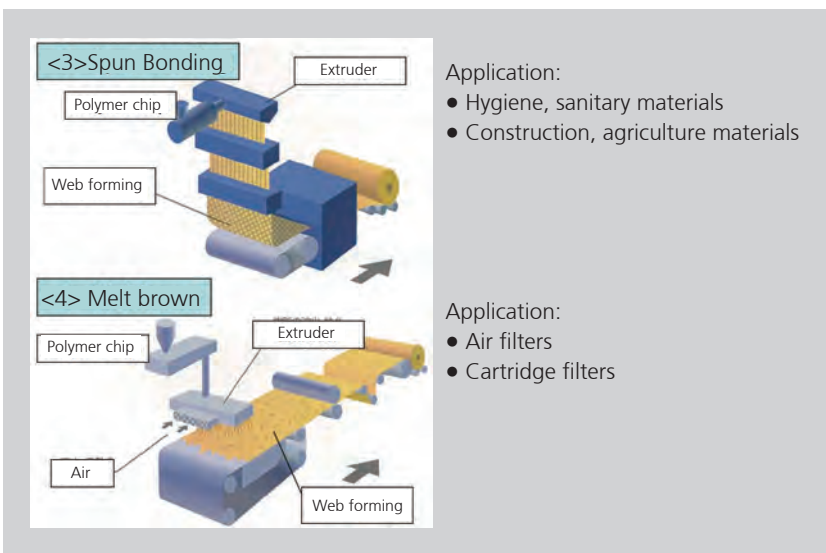


Application:

- Separators
- Pharmaceutical base materials
- Air filters
- Interlinings
- Automobile components

Application:

- Separators
- Electrical insulating material



- fine fiber ,surface treatment
- 4) Good permanent wettability
- surface treatment
- 5) Maintain resistance against short-circuit (when winding electrodes and separators)
- base materials(uniformity)
- 6) Cost

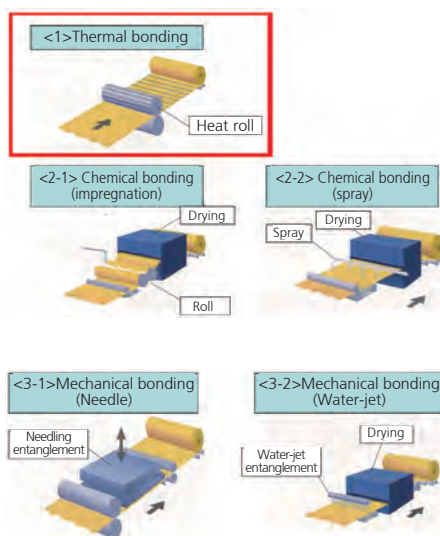
Manufacturing process

- * Wet lay, Dry lay =Fusing(Fiber bonding) = Winding
- Hydrophilic Treatment → Calendering → inspection
- * Design of base material
- Selection of suitable surface treatments
- Alkaline battery separator

Raw material : Fibers

| Cross section | Variety, Characteristic |
|---------------|--|
| | Sheath-core fiber(ex. PP/PE) Bonding fiber |
| | PP fiber Mono fiber |
| | Super fine PP fiber |
| | Split fiber (ex. PP/PE) Fine fiber |

Production process of NWF (bonding)



Manufacturing process

Wet lay, Dry lay =Fusing(Fiber bonding) = Winding
→ Hydrophilic Treatment → Calendering → inspection

Comparison of separator base materials

Variety of battery separators (base materials)

| | Strength | Uniformity | Denseness |
|--------------|----------|------------|-----------|
| Melt blown | -- | - | ++ |
| Spun bonding | + | - | - |
| Dry-laid | ++ | + | + |
| Wet-laid | ++ | ++ | ++ |

++ (best) → +(good) → - → -- (bad)

Type of hydrophilic treatment method

The purpose of hydrophilic treatment

PO-based NWF has hydrophobic surface→Improve wettability to electrolyte

Variety of hydrophilicity

- 1) Sulfonation treatment
- 2) Fluorination treatment
- 3) Plasma treatment
- 4) Acrylic acid grafting treatment
- 5) Corona treatment

Importance of design alkaline battery separator

The points of development for separators as follows;

- 1) Good uniformity
 - fiber, base material (dry-laid, wet laid)
- 2) Maintain strong tensile strength
 - bonding ,fiber
- 3) High electrolyte retention

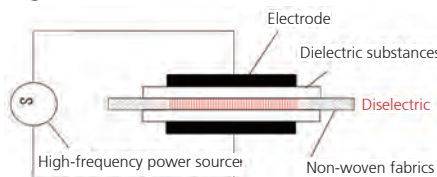
Technology News

The difference of the separator characteristics due to surface treatment

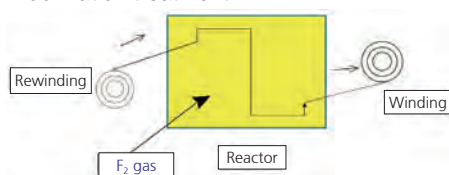
| | Electrolyte retention | Electrolyte absorption | Chemical stability | Self discharge | Cost |
|--------------|-----------------------|------------------------|--------------------|----------------|------|
| Surfactant | -- | + | -- | -- | ++ |
| Corona | -- | + | -- | -- | ++ |
| Plasma | + | ++ | - | -- | ++ |
| Fluorination | + | ++ | + | - | ++ |
| Sulphonation | ++ | - | ++ | +++ | - |
| Grafting | ++ | + | + | ++ | - |

Plasma treatment

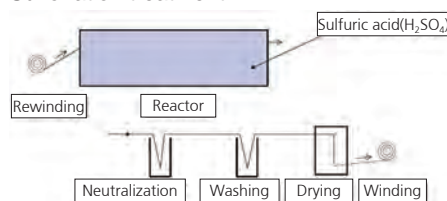
Plasma treatment: Atmospheric pressure (JVC original method)



Fluorination treatment



Sulfonation treatment



Relationship between of separator design and battery performance

| Separator Battery | Weight | Thickness | Treatment | Air permeability | Fiber diameter | Hydrophilicity |
|---------------------|--------|-----------|-----------|------------------|----------------|----------------|
| Capacity | | ↓ | | | | |
| Self-discharge | ↑ | ↑ | S>G | | ↓ | |
| Voltage | ↓ | ↓ | | | | ↑ |
| Internal resistance | ↓ | ↓ | | ↓ | ↓ | ↑ |
| High rate | ↓ | | | ↑ | | ↑ |
| Cycle life | ↑ | ↑ | S>F>P | ↑ | ↓ | ↑ |
| Internal pressure | ↓ | ↑ | | | ↓ | ↑ |
| Short circuit | ↑ | ↑ | | | ↓ | |

S:Sulfonation, G:AA Graft, F:Fluorination, P:Plasma

Development of NWF Li-ion Separator

Comparison with Polyolefin micro membrane and typical nonwoven

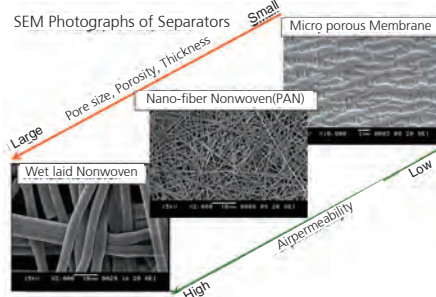
| | |
|--|---|
| <ul style="list-style-type: none"> □ Polyolefin micro porous membrane • Thinner nature (< 25 μm) • Mechanical strength • Small pore size (0.1 – 0.3 μm) • Shut down function | (Disadvantage) Heat resistance • Lower porosity (40 – 50 %) |
| <ul style="list-style-type: none"> □ Nonwoven fabrics • High porosity (60 – 90 %) • Composite of various materials | (Disadvantage) Short circuit • Large pore size (> 5 μm) |

Development of Li-ion separator

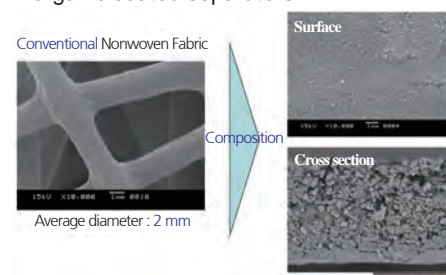
1) nano fiber separator(PAN)

2) inorganic coated separator

Application for Li-ion battery separator using nano fiber NWF



Inorganic coated separators



Summary

- ✓ The development of rechargeable battery can realize various application for electrical appliance, which is expected further growth.
- ✓ In the future, power applications will be able to expand the use of new batteries.
- ✓ The application of rechargeable battery for hybrid(HV)/electric vehicles will surely grow by strict environmental regulations.
- ✓ HV has already been sold more than 2 million cars worldwide and the demand is estimated to reach 10 million cars within next 5 years.
- ✓ NiMH batteries are mainly used for this use at the present day.
- ✓ In the future, Lithium-ion batteries will gradually become mainstream.
- ✓ The Japanese manufacturers have advantages in battery-related components such as separators.
- ✓ Chinese and Korean manufacturers are eagerly pressing forward the development of battery and battery applications.
- ✓ JVC has successfully developed ceramic composite nonwoven separators for lithium ion battery.

Technical Trends

Surface topography plays role in P&G technology for floor cleaning sheets

Household cleaning has been made easier and faster in recent years by the introduction of numerous new cleaning formula chemistries and wiping implements, many of which utilize nonwoven technologies. Floor cleaning methods for cleaning light spills, lint, food particles, dust and dirt debris has been made much more convenient through products like the P&G Swiffer® sweeper. The product utilizes removable nonwoven pads designed to facilitate debris capture. The properties of the nonwoven floor cleaning sheets reflect careful consideration of both overall debris capture and performance at the leading edge of the tool where floor debris and the nonwoven first interact. Various three-dimensional nonwoven structures, embossments, charged substrates and debris capture additives, including some with both dry and wet tack; have been developed to improve cleaning sheet performance.

In this patent by Procter & Gamble a three-layered floor cleaning sheet is disclosed with improved cleaning and floor debris capture. Central to the improvement is the creation of a three-dimension structure of ridges and valleys by controlled shrinkage of a center layer netting. The ridges are soft, deformable wiping elements which serve to aid cleaning while the valleys provide void volume for debris capture. An oil or wax additive aids in debris capture and further services as a carrier for various benefit additives such as antimicrobials. The ridges extend in more than one direction along branches to facilitate sheet performance as the implement foot is moved in various directions during floor cleaning.

Sheet cleaning performance is significantly improved by combining the microscopic surface texture of the nonwoven pad with a soil adherence additive. The combination provides good adherence of the soil to the sheet, good cleaning, dust suppression in the air and preferred consumer impressions, especially tactile impressions. The oil or wax additive can also be utilized as a carrier of other benefit agents. Example benefit agents include perfumes, pest control ingredients, antimicrobials, fungicides and

other ingredients which are either soluble or dispersible in the oil or wax.

Of particular interest is the means P&G uses to quantify structures which are more effective in removing and capturing floor debris. The macroscopic, three-dimensional texture of peaks or ridges and valleys is characterized according to a surface topography index which is a ratio of the average peak height differential divided by the peak to peak distance. Optimal values of the surface topography index are in the range of 0.3-2.0. Desirable ridge lengths are also defined in the range of 1.5-2.0 cm.

The three-layered structure consists of hydroentangled 30 gsm, 1.5 denier polyester nonwoven facings discontinuously bonded to a heat-shrinkable polypropylene/EVA scrim or netting. The EVA polymer is located on both sides for utility as an adhesive. The netting has a filament count of 3 x 2 filaments per inch before heating and a range of 2.5 x 3.5 to 3.5 x 4.5 filaments per inch after heating. Optional netting polymers include polypropylene or polyethylene polymers and copolymers, poly (butylenes terephthalate), polyethylene terephthalate, Nylon 6, and Nylon 66.

Thermal bonding of the laminate is set to coincide with the perpendicularly oriented filament crossover bond points of the scrim and is fundamental to achieving the desired degree of heat-shrinkage and resultant web texture. Bonding in this manner decouples the surface texture of the outer layers from the geometry of the openings in the netlike arrangement of filaments. The bonding technique utilizes a low pressure of < 25 psi and a short duration of < 30 seconds to facilitate discontinuous bonding.

The netting layer may be inclined at an angle between 30-60 degrees with respect to the length and width of the sheet. This orientation of the filaments permits deformation of the structure parallel with the edges providing the sheet with elastic-like behavior. Here, elastic-like behavior is defined as an elongation under tension of at least 120 % and a recovery to within 10% of its relaxed dimension.

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Product News

SCA launches new premium diaper Libero Touch offers high quality, good fit and softer feel

After two years of intensive development work at SCA's innovation center in Gothenburg, Sweden, SCA has launched Libero Touch diapers. The development and testing of the new diaper involved hundreds of children and their parents.

Linus Clausen, global brand innovation manager at SCA, says: "We have combined our experience as parents and diaper specialists with in-depth research, thorough testing and highly advanced product refinement to develop our new Libero Touch diapers – an utterly soft and skin-friendly innovation."

Libero Touch is unique on the market and contains 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.

Maria Holmberg, global technical innovation manager at Libero's innovation center, says: "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. All the materials and features have been carefully selected to provide total comfort and care for the baby."

The diaper core consists of superabsorbents, which can capture and encapsulate up to 60 times their own weight. The portion of the diaper that is in contact with the baby's sensitive skin – the inner liner – is exceptionally soft and the outside is composed of a material with cotton feel that also breathes. The diaper is responsive and adapts to a child's every movement and has dual barriers to minimize the risk of leakage. This allows Libero Touch to be a pleasant, comfortable and dry experience for both children and parents.

The softness has been verified in both laboratory and consumer tests. "In a blind test Libero Touch achieved outstanding results with eight out of 10 parents agreeing that our product was softer than the competitor's

product," says Holmberg.

The full assortment of Libero Touch is also dermatologically tested to guarantee that it is soft and gentle to the baby's skin. As with all Libero diapers, the Touch assortment bears the Nordic Ecolabel (the Swan), which guarantees that the products meet stringent environmental and climate criteria.

The new diapers are available in all the Nordic countries. Other markets will follow later.
(Source from: "www.nonwovens-industry.com")

Halyard Health adds new surgical masks

Four masks offer ASTM Level 1 or ASTM Level 2 fluid protection

Halyard Health, formerly Kimberly-Clark Health Care, a global medical technology company focused on preventing infection, eliminating pain and speeding recovery, announced the addition of four new Halyard Fluidshield ASTM-rated specialty surgical face masks to its product portfolio. Each mask offers either ASTM Level 1 or 2 fluid protection in accordance with ASTM F2100-11, the industry standard for the performance of medical face masks.

Studies show that blood or other bodily fluids strike the face of operating room staff on average between 45-51% of the time, putting them at potential risk for infection. Fluid protection is critical, yet more than 70% of all face masks used today are not ASTM-rated for fluid-resistance. Halyard Fluidshield ASTM-rated face masks offer both fluid protection and unique comfort features, including So Soft Lining, designed to meet clinicians' and operating room staff's needs.

The new offering includes:

- 39117 Halyard Fluidshield ASTM Level 1 Surgical Mask with Horizontal Ties
- 39118 Halyard Fluidshield ASTM Level 1 Surgical Mask with Horizontal Ties and High-Clarity WrapAround Visor
- 39123 Halyard Fluidshield ASTM Level 2 Expanded Chamber Surgical Mask with Ties
- 39124 Halyard Fluidshield ASTM Level 2 Expanded Chamber Surgical Mask with High-Clarity WrapAround Visor and Ties

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行业信息

安德里茨将会向印度AUTOTECH 非织造公司提供一套完整的针刺生产线

安德里茨阿斯兰蒂博作为安德里茨国际技术集团的一部分，收到了来自印度AUTOTECH非织造公司的一份订单，向其订购一套完整的针刺生产线，用于汽车，过滤和涂层基布领域应用的非织造产品。该生产线是安德里茨向印度提供的第一条完整的生产线。生产线的建造和人员的培训预计于2016年中旬开始。

安德里茨nexline针刺解决方案是为高速生产而设计的，生产线将纤维开松、混合，斜槽给棉，梳理，交叉铺网，牵伸，针刺以及卷绕技术整合在一起。整个工艺由ProDyn闭环系统控制，可以完成非常严苛外形的交叉铺网需求。高度可靠的安德里茨针刺技术可以满足最严苛的质量需求。

AUTOTECH 非织造布公司汽车轮毂公司坐落于古吉拉特邦，是一家为印度汽车产业提供高品质非织造布的顶级供应商。从安德里茨订购的这条生产线将会是过去7年中第一条由一个印度公司出资从欧洲企业购买的、完整的、具有唯一供货商的针刺线。使用安德里茨高品质针刺技术将会给现有的印度产业用非织造材料带来巨大的飞跃。

Mogul 在土耳其建立了新厂房

新的生产中心设在伊斯坦布尔附近

Mogul扩大其生产，在地处伊斯坦布尔附近土耳其的吕莱布尔加兹建立了公司的第三个工厂。Mogul已在加济安泰普运行了两家工厂，但是这两家工厂距离吕莱布尔加兹有相当长的一段距离。

Mogul在土耳其的第三个工厂运营尖端技术，将功能化添加到其现有的非织造布产品上，从而更好地服务于专业化和差异化的最终用途，如技术应用。新产品将包括复合纤维，长丝和纤网结构以及化学处理和印花应用。该高端生产线包括的工艺，如可分裂双组分长丝，交叉铺网型水刺。他们预计将在2016年的下半年开始运作。

Mogul计划利用其纺粘和水刺经验，使用最新的双组分超细纤维工艺开发新产品。针对这一目标，Mogul向北卡罗来纳州立大学购买了独特的超细结构纤维专利。Mogul的首次运用双组份技术是在其Buffalo

品牌产品，这要求公司开发与常规纤维挤压工艺不同的独特专业技术。该工艺生产类似布的非织造布，目标市场如服装、室内装潢、喷绘布、擦拭等技术应用。

新的交叉铺网型水刺工艺充实了Mogul现有水刺布产品，目的是满足在汽车、合成革、干擦巾、脱毛片、屋面和医疗卫生市场领域的需求。交叉铺网生产线将结合最新的在线浸渍工艺为开发织物填充、丙烯酸树脂、拒水、抗酒精处理、阻燃处理和染色。

“我们关注所有的层面和相关技术进步，积极追求我们的业务，” Serkan Gogus说，“通过利用我们的知识，开发符合市场需求的新产品，这就是我们保持市场竞争力的方式。我们新的尝试是为获得更耐用、高效、天然舒适的非织造布，这将为我们的打开新的领域。”

这是吕莱布尔加兹工厂三期投资计划中的第一阶段。在此地，Mogul计划的最终投入将超过初期的三倍。

欧洲以外，Mogul在八月宣布在南卡罗来纳州建立水刺运营线，这将标志着公司的第一个海外业务。该工厂预期在2016年的第二季度开始运行。

(资料来源:“www.nonwovens-industry.com”)

Don & Low 公司新增熔喷生产线

生产线将扩展领域进入新的市场

为现有市场及开拓新的市场领域，努力开发新产品，总部位于英国的Don & Low公司投资了一条新的熔喷非织造布生产线，将于2016年6月在苏格兰的Forfar（福尔）开始运行。这是一条幅宽为1.6m的（Oerlikon Neumag）欧瑞康纽玛格的生产线，意味着该无纺布厂家需要投资数百万美元并在非织造布行业扩展其技术领域。

从1989年开始，Don & Low公司开始涉足非织造布，开始时是一条幅宽为3.2m的莱芬线，以后又增加了两条莱芬线。该生产线主要针对英国国内和国际的家具建材市场，但该公司在一些医疗领域也取得了进展。

通过新的熔喷生产线，公司希望扩大到一些新市场，包括过滤、汽车、失禁、吸附材料和新型复合材料，它的年产量将达到

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1000吨。“当前投资一个新工艺是恰当的，符合我们的战略，对新材料的需求，扩大我们对技术复合材料制造能力，熔喷工艺是一个简单而现实的选择，”总经理Keith Galloway说，“我们可利用的现有能力已经接近极限，注入新的能力非常重要，这将提升持续发展高技术织物能力，包括复合材料。”

新的生产线将使用一系列的高聚物，包括聚丙烯、聚乙烯和热塑性聚氨酯，并且提供如在线透气性、静电驻极、控制压辊间距、多种幅宽分切功能。这将会让Don & Low公司精确对应客户需求生产熔喷和复合材料。

2003年起，Don & Low公司成为了Thrace Plastics集团的子公司。另外，除了Don & Low公司的三条莱芬生产线，它的姊妹公司Thrace Nonwovens在希腊运行了一条幅宽为3.2m的莱芬线。

(资料来源:“www.nonwovens-industry.com”)

啊嚏！Sneeve从“吸血鬼打喷嚏”捕捉细菌

弹性的，具有抗菌性的非织造布袖套帮助预防细菌的传播

现在的孩子在学校时都被这样教育：“在没有纸巾的时候，咳嗽打喷嚏要到自己臂弯处，而不是用手去覆盖他们的脸。”这也俗称吸血鬼打喷嚏，而最近一对纽约的父子提出了一个防止细菌进一步传播的设想，用一个抗菌处理的非织造布袖套覆盖在孩子的手臂上—The Sneeve。

Sneeve是一个柔软、有弹性、有吸附功能的小袖套，孩子们可以戴在手臂上，衬衣、毛衣、运动衣、睡衣外面，以捕捉那些令人讨厌的细菌，每一片用即弃的Sneeve可以使用12小时到24小时，可以吸收痰和粘液，阻止它们污染孩子们的衣服。它采用含有4.846%的柠檬酸以及0.003%的银离子抗菌剂，可以杀死99.9%的病毒和细菌。

它的发明者之一，Nicholas Bratskeir说，他的父亲Stan第一次想到这个主意是在两年前，他的孙子Chase，即Nicholas的侄子，对着臂弯打喷嚏，Bratskeir回忆说：“这是从来没有教过他的，也是我的父亲这一辈完全没有想过的事情。”当了解到Chase为什么要对着手臂打喷嚏之后，Stan

就在头脑里面即刻有了Sneeve的想法。Bratskeir说：“我们想，这可能确实有效。从一开始，我们就设想如何适用于孩子们的手臂，我们初步设想是它可以加在衣服上面，它需要进行后处理，需要一个不会伤害孩子脸的材料来制作，并且是现已有的一些材料。”

Bratskeir和他父亲寻找了高端和低端的适用材料，最终采用了美国生产的纺粘非织造布。Bratskeir说：“这是一种专利非织造材料，并且它是生产这个产品最重要的一片材料。现在有很多非织造材料，尤其是中国制造的，看上去很像产品所需的材料，但是当我们拿到样品时，我们发现它们和网上看起来或者描述的样子没有什么相似的地方，我们的非织造布具有一个特性，它允许在一个方向进行拉伸，并且有比较好的延伸性能，因此它适合于从三岁到八岁孩子使用。”

在Sneeve众多的优点中，有一条是它可以促使很多孩子养成良好的习惯，他说：“大部分孩子去学校时候，都不会在他们的背包里面带上纸巾或者洗手液，因此促使孩子们在学校已经学习过的好习惯，使用Sneeve去养成这个习惯，不仅对家长、孩子、也对我们来讲这是一个双赢的局面。”

Sneeve目前在www.thesneeve.com网站上以9.99美元/7个的价钱进行零售，它有望明年初让全国主要的零售商进行销售。

(资料来源:“www.nonwovens-industry.com”)

杭州诺邦无纺股份有限公司引进的Voith/Trützschler生产线开始运行

坐落在中国浙江省的杭州诺邦无纺股份有限公司于2015年4月开始运行其新引进的可冲散湿巾产品的生产线。这条生产线是中国市场上第一条由Voith提供的HydroFormer湿法成网设备和Trützschler提供的AquaJet水刺设备创新概念的新生产线。仅工作3天以后，该机器的生产速度可达200米/分钟。

诺邦公司总经理张杰说：“我们对Voith和Trützschler的技术支持和经验非常满意，感谢他们技术人员的专业能力和优秀的敬业精神，使这个项目开展快速和顺利。”

在诺邦，Voith和Trützschler的共同努力



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下，只用了5个月的时间就完成车间的构建、组装和试运转。该生产线用纤维素纤维为原料，采用湿法技术生产可冲散湿巾，这是诺邦的第8条生产线。在设定的3750毫米幅宽和250米/分钟的速度下，诺邦的可冲散湿巾产品克重范围为50-80克/平方米，每年的产能可达15,000吨。该可冲散湿巾拥有良好的可冲散性和100%可生物降解。

Voith提供了一个关键的组件—湿法成网。该机器以Voith在纸浆和造纸工业上长时间的专业知识为基础，使可再生的原材料及纤维素原料生产成非织造布，同时还有充足的原料准备、流动系统、辅助设备和在线服务。全自动和可控包装技术也包括在内。与此同时，Trützschler提供了众所周知的AquaJet技术，一个转鼓烘干机和卷绕机，能满足湿法水刺工艺的需求。

这种充分利用资源的生产线对于诺邦在巩固中国市场位置，甚至全球的非织造布市场中都占有非常重要的位置。诺邦于2007年成为了老板集团的一员，此后，在湿法无纺布行业成为了一个全球领先的企业。(资料来源:“www.nonwovens-industry.com”)

清洁胡须的擦拭巾

Zekes胡须擦拭巾采用精油和芦荟来清洁和保湿

这个灵感来自“November”，也就是所说的十一月不刮胡子，指为了关注男性健康，男人们在这个月蓄胡子，来筹措慈善资金的活动。Kyle Larocco创立了Zekes胡须擦拭巾。

Larocco在2014年的“November”中蓄了

胡须，但他的女朋友不喜欢。他说：“当问她为什么讨厌胡须时，她说它们很脏很丑，感觉像是有什么东西被卡住了，看上去很滑稽，仅仅因为它们长的不好看。”

甚至他的朋友们都在抱怨，Larocco意识到他再也不能置之不理了。又痒又干的皮肤，闻起来又臭，真的不知道他如何吃东西的。他说：“那时，我想到了Zekes胡须擦拭巾，可以随时随地地擦拭胡须。”

该擦拭巾是11月1日开始着手的，它是由精油做成的，如精心挑选的椰子油，荷荷巴油和阿甘油，因为它们清洗和整修胡须是最佳的。这种擦拭巾还包含芦荟，它能极大地刺激调理皮肤，特别是对新胡须的生长。他解释道：“我们保留了它最原生态的成分，使得我们的擦拭巾低敏感性。”

根据Larocco所说，46平方英寸的擦拭巾是厚的、耐用的、富有弹性的并且可延展。他们能提供10片或30片独立包装的擦拭巾。他说：“10片包装的形状像一个香烟盒，它很小、易携带。不用担心，胡须油和胡须膏都有地方放。无论在酒吧，赌场，办公室，或者任何你能想到的任何地方，在特定的晚上都可以使用它。Zekes胡须擦拭巾轻便、实用、非常适合工作场合，使你的容颜焕发，继续工作。”

Zekes胡须擦拭巾是一种适合男性使用的、有香味的擦拭巾。更多详情请登录ZekesBeardWipes.com和Amazon.com及Amazon.co.uk了解。

(资料来源:“www.nonwovens-industry.com”)

亚洲非织造材料协会(ANFA)2015年理事会纪要

2015年12月1日，来自日本、中国大陆、韩国、台湾、香港等国家和地区的ANFA会长、副会长、理事及代表等四十余位负责

人于中国东莞观澜湖酒店召开亚洲非织造材料协会(ANFA)2015年理事会。

1) 已经批准的2016.1.1 –2018.12.31期间理事名单(加星号者为新任者，其余的为连任者)

| | | |
|----|----------------------|----------------------------------|
| 日本 | Japan Takenaka Yasuo | Tapyrus Co., 名誉主席 |
| | Yoshida Toshio | Japan Vilene Co.,董事长 |
| | Inoue Kazuhisa | Shinwa Co., Ltd. 董事长 |
| | Oishi Yoshio | Dynic Corporation, 董事长 |
| | Miki Masato | Miki Tokushu Paper Mfg. Co., 董事长 |

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| | | |
|-------|----------------|---|
| 中国 | 郭开铸 | 欣龙控股（集团）股份有限公司，董事长 |
| | 谷源明 | 大连瑞光非织造布集团有限公司，董事长 |
| | 赵民忠 | 俊富集团，董事长 |
| | ☆杨长辉 | 汕头三辉无纺机械厂有限公司，董事长 |
| | ☆邓伟雄 | 稳德福无纺布有限公司，董事长 |
| 台湾 | 黄清山 | 南六企业股份有限公司，董事长 |
| | 邱正中 | 卫普实业股份有限公司，董事长 |
| | 陈弘坤 | 协蕊实业股份有限公司，董事长 |
| | 邱汉郎 (Allen) | 三芳化学工业股份有限公司，副总经理 |
| | 林国明 | 科德宝远东股份有限公司，董事长 |
| 韩国 | Korea Ku Pyung | Kil Star Susemi Co., 主席 |
| | Park Chan Hyuk | Shunshn Enterprise Co., 董事长 |
| | Kim Young Ok | Soung Kwang Industrial Co., 董事长 |
| | Cho Kwan Young | Daehan I.M Co., 董事长 |
| | ☆Kim Jung Yeol | Sungkwang Ind. Co., 董事长 |
| 香港 | 杨自然 | 国桥实业（集团）有限公司，董事长 |
| 印度 | Gupta Samiar | Business Coordination House Managing Director |
| 印度尼西亚 | ☆Billy | Hidjaja PT Hasil Damai 纺织公司, 总裁 |

2) 已批准的2016.1.1 –2018.12.31期间的ANFA事务官如下(加星号者为新任者，其余的为连任者)

最高顾问: 戴荣吉（康那香公司董事会主席）

名誉会长: Kanai Hiroaki, Kanai Jyuyo Kogyo 公司，总裁
王延熹，希达科技有限公司，董事长

会 长: ☆黄清山（台湾）

副会长: Takenaka Yasuo（日本）

☆Ku Pyung Kil（韩国）

☆郭开铸（中国）

监 事: Yoshida Toshio

工作委员会主任(CEO): 向阳（希达科技有限公司）

秘书长: Tsuchiya Hideo（ANNA 顾问）

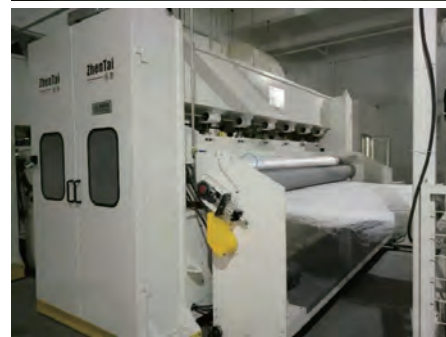
联络处主管:

日本（ANNA）：Sayanagi Toshiaki

中国（CNTA）：张波

台湾区（台湾区不织布工业同业公会）：
黄稚评

韩国（KNIC）：Yi Sang Kook



械专业研发制造企业，专业生产各类无纺设备，始终矗立于非织造机械行业的最前沿。始终以“信赖振泰、使每个客户满意”为宗旨，致力于为全球客户提供技术领先、品质卓越的非织造机械！首条7.2米宽纺丝成网+针刺土工布、油毡基布生产线调试成功是该公司与大连华阳的首次合作。该条生产线最高转速可达1500转/分钟。

振泰首条7.2米宽纺丝成网+针刺土工布、油毡基布生产线调试成功

2016年1月20日，振泰机械携手大连华阳，首条7.2米宽纺丝成网+针刺土工布、油毡基布生产线调试成功！

常熟市振泰无纺机械有限公司是非织造机

振泰，打造精品无纺机械！



行业信息

IDEA16 波士顿展会安德里茨无纺布将展示其最新创新技术

2016年3月2日格拉茨。作为安德里茨国际技术集团的一部分，安德里茨无纺布将在美国无纺布行业重大活动IDEA16（2016年5月3~5日，波士顿；801展台）展会上展示他最新的创新技术。无论是干法、湿法、纺粘、水刺或是针刺，安德里茨无纺布他提供从成网到后整理的综合内部解决方案。

安德里茨neXcal quadriga双轮4轧辊热覆膜轧光机：大容量、工艺稳定、高品质

随着卫材市场的不断变化，众多新的刻花图案作为表面结构或者织物特性需求不断增加的结果，已成为无纺布生产商灵活度之大挑战。不同凡响的新的5轧辊机概念是增加容量、提高工艺稳定性和产品品质的里程碑。安德里茨寇司德neXcal quadriga双轮4轧辊热覆膜轧光机它配备了经验证的Hot S-Roll 辊和4个带全自动产品替换的凹凸刻花辊。

大容量和超轻型织物可持续生产之新解决方案

针对卫材市场需要较轻又具有完美均匀度的水刺织物，安德里茨帕弗杰特开发了新的超轻型织物生产解决方案。感谢安德里茨帕弗杰特自身众多的干法和水刺工艺专家们，安德里茨提供的Isoweb TT梳理机和Jetlace水刺设备相完美结合单元成为当前高速处理超轻型水刺产品的领先技术解决方案。如今无纺布生产商们能生产克重20克/平方米甚至更轻的超轻型水刺织物了。

连同最高产能，对于安德里茨无纺布而言，可持续性同样也是刺激发展的常量。作为整套生产线工程专家，安德里茨开发的技术在保持最高水准水刺产能的同时，为降低能耗和浪费做出了卓著的贡献。预湿润配置、喷头的设计、用于烘干的neXecodry 系统、水过滤循环或者紧凑型电机设计这些都是安德里茨neXline水刺独一无二的特点。

成本效益高、灵活可靠和强大高效的针刺生产线

从开松混合到卷绕设备，安德里茨提供成本效益高、灵活、可靠和强大高效的交钥匙针刺生产线。neXline针刺设备它覆盖广泛的无纺布最终用途技术领域，如土工布、汽车、过滤、屋顶油毛毡以及涂层基布。

neXline针刺eXcelle系列产品提供满足生产商对织物特性需求的独特解决方案，比如满足重量均匀度、抗张强度和在4500~9000吨/年高产能时的均匀性。安德里茨阿斯兰·蒂博支持客户，提供给客户技术生产线配置以及相关的服务，优化客户生产线性能。

北美强大的安德里茨无纺布基地

和许多核心商家一起为了响应不断成长的美国一次性用品和耐用品市场，安德里茨在南加州斯帕坦堡当地的分支机构的所有无纺布重要销售和售后服务表现良好。美国的客户得益于安德里茨的高技术人才销售队伍、经验丰富的现场和工艺工程师响应服务，以及众多常备的安德里茨原装备品备件。辊子服务中心是一项主要的经验领域，专业从事所有辊子的维修、再处理和升级。现场来自安德里茨阿斯兰·蒂博的工程师、备品备件专家以及工厂培训的干法和针刺技术技师使安德里茨寇司德团队更加完整。他们组成了一个经验极其丰富的特别小组24小时/7天的热线服务确保所有安德里茨无纺布技术的生命周期支持。

安德里茨集团是水力发电、纸浆和造纸、金属制造、钢铁工业以及民用和产业用固液分离工厂、设备和服务的全球领先供应商。上市国际技术集团总部位于奥地利格拉茨，拥有员工24500人。安德里茨旗下有250家公司遍布全球。

更多信息请联系：

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▼安德里茨neXline 针刺机eXcelle系列



安德里茨neXcal quadriga双轮4轧辊热覆膜轧光机

市场动态

Johnson Controls公司的汽车座椅及内饰业务

成立新的汽车座椅及内饰材料公司—Adient

Johnson Controls公司宣布2016年10月成立一家新的上市子公司—Adient，将负责汽车座椅和内饰业务。

“Adient是一个积极且强大的名字，它强调了我们独特的差异化，换言之，我们有能力在正确的时间将正确的板块用正确的方式拼凑在一起，为我们的客户提供最有价值的服务，” Bruce McDonald，现任Johnson Controls的副董事长，Adient的董事长及CEO说，“Adient是一个拉丁词，它可以翻译为接受和推动一种情景或一种刺激，这正好代表了我们需要不断努力，不断完善，不断提高。

Adient这个名字是由McDonald于周二在密歇根州的底特律德意志银行全球汽车产业大会上宣布，作为他给投资者介绍的一部分。

“我们的新名字是在我们推出新品牌迈出的第一步，这将定义我们未来是一家成功且独立的公司。” Bruce McDonald说，“我们的任务是制定作为一家世界级汽车座椅供应商的标准，通过引领成本、品质、执行力及客户满意度。我们将利用我们的能力来推动无论是在汽车行业与行业外的增长。”

在他的演讲中，McDonald说，“他希望Adient实施新的战略，这个战略将推动更高水平的增长和盈利能力，从而带来强大的现金流。”他同时表示，为了获得份额将增加创新方面的投入同时增加客户与股东的价值。

Adient希望在三月底或者四月初公示详细的财务信息，同时向美国证券交易委员会递交1份表格10信息声明。一旦提交，该表格的副本可在2016年1月后向投资者提供（www.johnsoncontrols.com或者www.adient.com）。

Adient的普通股票将在纽约证券交易所上市，其股票代码为ADNT。第一天的交易预

计将在星期一（2016年10月3日）。（资料来源：“www.nonwovens-industry.com”）

Edson公司将推出Raptor SL自动装箱机用于家用和非家用的卫生纸工业

为中小型生产家用和非家用的卫生纸厂家设计的解决方案

由Pro Mach公司管理的Edson Packaging Machinery（埃德森包装机械）于2016年3月15—17日在新奥尔良召开的世界卫生纸展览会上将推出Raptor SL，这是一种高性能的自动包装机，适用于中小型生产家用和非家用卫生纸厂家。这种新的机器使卫生纸供应商，在提高产量和支持增加销售，同时降低包装线的劳动力成本。

新的Raptor SL是一台综合的侧载机，可以完成创建、包装、热熔密封的工作，每分钟完成12包家用和非家用的浴室卫生纸、纸巾、餐巾和面巾纸。Raptor SL的特点ProTech技术，是Pro Mach公司基于云技术的远程操控系统及机器的监控能力以确保优越的性能和产量。

Raptor SL允许中小型的家用和非家用的卫生纸供应商通过建立一体化的创建、包装、热熔密封去获得更高的产量和生产效率，Jeff Werner（Edson的副总裁兼总经理）说，“一些低容量的操作，使用两甚至三条线的Raptor SL，将获得更大的生产能力，而使用更少的劳动力。2016年世界卫生纸展览会的出席者可以现场看到工作中的Raptor SL，并与Edson的相关人员讨论这个自动化解决方案是怎么使得企业增长和盈利的。

Raptor SL通过减少工人的数量和缩短装箱时间，降低生产线的劳动成本。装载分装平台（KDF）输送包装至给料运输装置，与其它自动包装机相比速度快，且低劳动密集型。一个可选的扩展给料运输装置，包括含有超过6个垫板的KDF分装平台。基于生产速度，拓展的传送带可能导致数小时的空载时间。Raptor SL自动装载每层新的堆叠，同时保持机器运行，促进最大正常运行时间。操作工可以在喂入加载过程中，轻松选择KDFs垫板或者零垫板。这使操作工更加灵活地使用KDFs。

货物库存单元（SKUs）之间的转换完成仅需要15分钟，且不需要工具。Edson也提

市场动态

供了一种完全自动切换基于伺服技术快速执行的选项。这个选项利用多个SKUs为包装生产线设计。

操作工可以通过触摸屏接口接触到设备的重要功能和信息，包括各种不同的SKUs方法，报警设置，生产数据和文件维护（印刷、图表和视频）。Raptor SL提供完整的安全运动控制。

ProTech设计了安全和冗余信息，是通过Pro Mach公司基于云技术的远程操控系统及机器的监控能力，不逊色于世界的大公司。ProTech的远程监控水平可以在中小型企业与大型企业之间使用，它有能力使得机器处于最佳性能的方式，这种能力是基于实时的整体设备效能（OEE）数据。ProTech的报告将显示持续改进和赋予包装生产线更强大的竞争力。Pro Mach公司的ProTech技术支持减少服务时间的功能。当一台设备哪天不运转的时候，这种情况下技术员不得不被派遣到包装生产线上，通过最先进的远程诊断技术也就花费几小时或者几分钟的事情。

（资料来源：“www.nonwovens-industry.com”）

American Roller收购了Nordson（诺信）的生产线

交易包括 XALOY DuraShell和EquaTherm 冷却辊

American Roller公司通过收购诺信的XALOY DuraShell和EquaTherm 冷却辊，扩大了其产品和服务提供。交易条款未披露。

“这一战略举措使得American Roller公司建立了更强大的工业辊产品线的历史，并使其扩展到额外的终端市场。” Dan Cahalane（American Roller公司的代表）说，“我们致力于为客户提供高品质的产品线，同时用我们的工程资源来推动产品的进一步改进。”

American Roller公司已经承担了生产线的报价、工程和制造责任。

“我们致力于这些产品线顺利过渡到American Roller公司，从长远的角度，他们的专业技术将会为客户提供更显著的价值。” Steve Purcell（诺信的副董事长，负责北美地区的聚合物加工）说，“下一

步，为了我们在全球聚合物加工领域的客户，诺信将继续把重心放在我们的全面生产线如辊筒，螺丝，泵，换网器，模头和其它熔体流器件。”

（资料来源：“www.nonwovens-industry.com”）

Berry Plastics重组收购的Avintiv公司 Tracey将领导卫生膜与非织造材料业务的组合

Berry Plastics开发了它最新的收购公司——Avintiv——这个举措非常明智。在进行的第四季度财务汇报会上，公司的管理人员称，这个秋季收购的非织造公司——Avintiv，包括新的健康、卫生和特殊材料的业务。这个子公司将由Avintiv的老将Scott Tracey来领导，Berry公司的其它产品将分为两个部分，消费品包装以及工程材料。

健康、卫生以及特殊材料业务的销量占Berry Plastics公司35%，除了这些非织造产品以外，该分支还包含了针对个人护理应用的berry的薄膜业务。新分支的销量一半来自于北美，23%在欧洲、中东和非洲，10%在亚太地区，16%在拉丁美洲。相反的，除了这一部分，Berry的其它销量在北美占据很大的比例，所有的包装材料都在北美进行销售，91%的工程材料销量也在北美。

这些全球分布的数据是公司主管所说的Avintiv对Berry Plastics有很大吸引力的最主要的原因，Avintiv在北美、欧洲、拉丁美洲以及亚洲的14个国家，23个地区都有销售点。

Berry Plastics公司的首席执行官Jon Rich说：“新收购的Avintiv增加了我们在全球的市场分布，加速了我们在发展中国家的市场的增长速度，同时，它也有利于我们的客户为其世界各地的客户提供良好的包装材料。”

紧随这次对Avintiv的收购，Berry公司40%的销量增长在个人护理市场，80%则稳定在消费导向的市场。公司现有13000个客户，其中最大的低于总销售的4%，Berry和Avintiv共享卫生领域的一些重要客户，包括大型尿布、女性卫生巾以及成人失禁产品。

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事实上，这两个公司的整合预期可以减少5000万美元的成本，其中3000万美元有望在2016年完成，Rich说，“我们依旧乐观的认为我们会获得比这个数字更大的成本节约，就如收购Avintiv之前Berry所完成的。”

这些成本的节约关键在于树脂的采购方面，这个合作将Berry成为世界上聚丙烯树脂最大的客户。这两家公司每年的树脂采购正好低于20亿磅。

在2015年的财务报表中，Avintiv独自获得了19亿美元的销量，这包含了Avintiv在北美2%的增长以及在拉丁美洲及亚太地区的销量，这些将Berry Plastics的总体销量提高到67亿美元。

在这次企业重组中，Joel Hackney（Avintiv的CEO）称，他将离开Berry Plastics到其它公司，Hackney自从2013年开始在Avintiv的董事会工作，带领公司进行了一系列的收购和投资，最终使其成为非织造行业最大的生产商。

（资料来源：“www.nonwovens-industry.com”）

巴西湿巾市场分析

专注于创新和承受能力以提升市场渗透

巴西一次性卫材的全球市场排名一直稳步上升，其零售额从2000年27亿美元增长到2014年46亿美元。然而，在整个卫材市场，湿巾的销售却一直不甚理想。

在美国等发达国家市场，个人湿巾的市场份额占2014年一次性卫生用品零售总额的14%。另一方面，在巴西，个人护理湿巾仅占同年7%的市场份额，而家庭护理湿巾的销量仍然是一个细分类别。尽管如此，虽然实际总值仍小，在过去几年中，个人湿巾的销售额在巴西已实现两位数增长，以不变美元价值来计算，从2009年到2014年实现了12%复合年增长率。这优于同一时间湿巾系列更加成熟的美国市场，其只有1%复合年增长率。

中产阶级消费力量的增加以及产品的持续开发工作作为湿巾种类的增长创造了一个良好的平台。然而，与此同时，高昂的产品价格成为更广泛的消费者认同和市场渗透的一个障碍。

创新和价格敏感度塑造市场

2014年，婴儿湿巾占个人擦拭巾零售额的最大份额。事实上，巴西是发展市场（包括墨西哥）中为数不多的几个拥有相当大的婴儿湿巾类别的市场的国家。然而，在2014年3.11亿美元的零售额，婴儿湿巾的价格仍然低于花在尿片/尿布/纸尿裤上的钱。2014年巴西人在婴儿湿巾上的消费支出大约是花费在尿片/尿布/纸尿裤总开支的13%，在美国这一比例为26%，英国则为35%。

婴儿湿巾是尿布的补充产品，纸尿裤生产商往往有投资湿巾计划，以在婴儿护理产品中建立品牌忠诚度。此外，行业不断投资生产更高端的产品，来吸引父母的注意和推动需求。最近在巴西婴儿湿巾市场新推出的包括帮宝适低敏感性婴儿湿巾，以及强生新功能婴儿用湿巾—这些适合新生儿湿巾，具有宁静的芳香和保湿性。巴西市场也吸引了产品制造商，如法国Laboratoires Expanscience公司，高档护肤品牌Mustela的制造商，公司携带一系列用来清洁婴儿脸和身体，以及在更换尿裤过程中使用的产品。

当然积极的产品开发增加了婴儿湿巾的使用，相对合理的价格也在湿巾被消费者更广泛的接受中具有影响力。

婴儿湿巾实际销售额大幅下降背后，在2014年达到2100万美元的是化妆品清洁巾，在巴西主要为面部清洁湿巾。这些产品目标人群通常为拥有较高可支配收入的中上阶级女性，虽然这一部分整体市场渗透率仍然很低。2014年，相比于婴儿湿巾，面部清洁湿巾的增长远少于预期。高昂的价格是扩大这些产品的需求的关键抑制剂，尤其在巴西经济增长放缓，消费者信心受打击的环境下。在2014年，婴儿湿巾的平均零售价为三到四美分/每片（按2014年固定汇率）。帮宝适低敏感性婴儿湿巾等新产品，有更高的价格至11美分/每片。然而，这仍然远远低于面部清洁湿巾的平均价格，低了至少三美分。考虑各种便宜的广泛用于去除化妆品和的替代品：如液体清洁剂，洗脸毛巾和棉片，巴西的消费者在日常清理中宁愿考虑必需品而不是奢侈品。

市场动态

在巴西湿巾市场增长最快的第二个产品是通用擦拭巾，在**2014**年实现了**7%**的价值增长（以定值美元计算），超过**2013**年。这些销售的湿巾市场用于手、脸和身体，也有用于家庭室内或户外。有利的是，比面部擦拭巾更好的定价，这将有助于赢得更多的消费者。

可支付力和进一步的产品细化将推动消费者对于产品的接受。

巴西的湿巾市场将继续前行，在接下来的五年里，预期有**11%**复合年增长率（以**2014**年恒定价格）。婴儿湿巾，通用湿巾和面部清洁湿巾产品仍将是关键。然而，这无疑为进一步产品细化和差异化提供了空间，也将扩大消费者可选择范围。

高价格成为湿巾广泛使用的绊脚石，以及考虑到巴西正面临的经济问题，价格敏感度变得尤其重要的。在过去的十年里，巴西已经成为许多卫生产品领导制造商开拓市场的关键，如金佰利和宝洁，都成功地利用了该国快速增长的中产阶级的需求。然而，美好的时光已经一去不复返了，以及在消费品行业有深远的影响。

随着对价格关注的增加，在巴西发展自有品牌湿巾可能会获得更好的成绩。**2014**年，在巴西注册的自有品牌湿巾销售额增长了**30%**，令人印象深刻。自有品牌产品制造商已经拥有更多的专业知识，从而为零售商提供大规模的高质量产品来帮助吸引顾客的注意力，与其他顶级竞争者的竞争中获得成功。在**2015**年和接下的几年里，经济价值和产品发展范围将强烈提上议事日程。然而，进一步的产品细化和差别化以及强劲营销活动不应被忽视，才能支持长期稳定增长。男性化妆湿巾产品的开发和销售可以作为一个领域考虑。在巴西，男性的美容产品获得了显著增长，包括男性化妆用具：洗浴和淋浴，皮肤护理和除臭剂。

总的来说，在巴西，男性的主要花销仍然在更传统的美容产品，比如剃须。然而，化妆品也在强劲的增长，加之产品开发，看到男性专用皮肤和洗浴保健品在商店货架上增多，显示了传统的美容产品之外的兴趣增长点 and 开拓男性个人护理湿巾市场

的机会。看到其他市场这种发展已经发生了，可以帮助在巴西做出相应的评估和设计策略。

例如，美国Dude Products公司在**2012**年推出了Dude品牌的湿巾，专门针对那些在工作，健身房和社交活动中可能没有时间淋浴的男性消费者。据该公司介绍，其湿巾用于脸、手、腋窝和“私密”部位的清洁。现在产品分线上和线下专卖店销售，受到消费者广泛的好评。**2013**年，Dude品牌的湿巾赢得**2013**年美国Vision消费产品研讨会最有远见奖。随着在年轻男性中美容和护理的兴起，这种类型的创新可以帮助进一步扩大湿巾种类。然而，它需要创新的思维和产品开发的投资和市场营销，来争取消费者的认同。

（资料来源：“www.nonwovens-industry.com”）

格莱富特宣布：计划在美国打造新的高级干法纸材料设施

纽约，宾夕法尼亚州-**2015**年**12**月**10**日-GLATFELTER（纽约证券交易所：GLT）今日宣布，将投资**8000**万美元在美国建立新的生产基地，为其高级干法纸材料业务（AMBU）。该公司目前正在评估选择地址，将首选美国南部。

“我们先进的干法纸材料业务是一个全球性的增长平台，这是一个难得的好机会，利用北美地区对该材料不断增长的需求和市场缺口。生产质量更轻的卫生材料和一次性擦拭产品，”主席兼总裁Dante C. Parrini说。“我们建立这家新工厂的计划是为了直接应对客户的需求，在北美趋紧的干法纸市场中增加产能。”

新工厂预计将有**22,000**吨的年产能，将公司的全球总干法纸材料产量提高至**129,000**吨。在市场成长的支持下，该投资的大部分产能已获得客户购买的承诺。此外，新工厂将在美国建立一个专业的设施，创建一个卓越的中心生产其它更轻定量的产品。该项目由现金和其现有的信贷资金共同资助，预计将大约两年后开始生产。

“我们正计划将工厂定位美国南部的几个关键客户附近，从而优化高效率的运输路线，并且该地区可以让我们获得高质量，

市场动态

有技能的劳动力。”新型干法纸材料高级副总裁兼业务部总裁Chris W. Astley说。

“确定工厂的最佳位置能为格莱富特及客户提供物流及供应链的便利，增加合作的机会。我们高级干法纸材料业务享有良好的客户关系，我们希望新工厂能为我们提供竞争优势，带来持久的增长。”

格莱富特高级干法纸材料业务部在全球的女性卫生、成人失禁、擦拭和家庭护理市场占据了领先地位。其产品在食品包装和工业应用中也有广泛的使用。现有的生产工厂主要位于加拿大和德国。

格莱富特是特种纸和纤维工程材料的主要供应商，提供创新的，世界一流的服务，拥有超过一个半世纪的专业技术。总部设在宾夕法尼亚州的约克，该公司为100多个国家的客户提供服务。在美国的运营包括宾夕法尼亚州和俄亥俄州的工厂。国际业务包括在中国，俄罗斯，加拿大，德国，法国，英国和菲律宾的工厂以及中国和俄罗斯的销售和分销办事处。格莱富特年销售额接近17亿美元，该公司在纽约证券交易所上市，股票代码GLT。更多信息请访问www.glatfelter.com。



杜邦™热人仪®测试过程

试网络，并且创新中心也会进一步增强我们为客户的服务能力，”杜邦防护解决方案总裁Rose Lee说。“我们随时准备支持开发更先进的面料，同时推进我们自己的纤维技术的发展，这将增加和扩大防火保护水平，为那些常见行业中的危险提供保护，其中包括消防员，产业工人，急救人员和军事人员。”

杜邦™热人仪®，真人大小的感知化人体模型，布满了122个热传感器，是世界上最先的热灼伤评估设备之一。此仪器由杜邦公司和美国政府联合开发，以保护军事人员避免烧伤。

“杜邦公司在全球投资热人仪®检测设施，最终受益者是全世界的消防员和其他需要依靠防护服工作的专业人士” Russell Shephard说，他是国际标准化组织（ISO）中消防员个人防护装备委员会的主席，也是澳洲防火和紧急服务委员会（AFAC）的标准负责人。“杜邦的热人仪®，符合严格的国际标准，有效地模拟了防火服穿戴者的真实处境，为设计决策提供反馈。”

杜邦™的Nomex®是享誉全球的领先防火纤维。超过300万的消防员，以及制造，化工，石油和天然气工业，急救人员和武装部队的人员依赖着Nomex来进行热防护以帮助保证他们的安全。Nomex纤维可以使防护服以最低的重量获得最高的保护，降低热应力提高透气性，并能够有效地吸走湿气。除了个人防护，Nomex®纤维还在大众运输系统、风能、变压器、过滤、软管和飞机上都有使用。有关杜邦™热人仪®的更多信息，请访问：“www.dupont.com”。

杜邦公司在亚洲和拉丁美洲扩大其热性能测试能力

新加坡和巴西即将使用新的热人仪®设施

特拉华州威尔明顿，2016年1月28日——杜邦防护解决方案今天宣布，2016年将在巴西和新加坡增加两个新的杜邦™热人仪®检测设施，提升检测和分析防护服性能的能力，这些防护服是接触突发火灾的，这是许多行业的公司都会存在的风险。包括现已提供服务的位于美国，瑞士和阿拉伯联合酋长国的杜邦™热人仪®专有测试实验室，全球实验室总数将达到五个，这将可以与所有地区的客户一起进行创新和产品开发。

杜邦公司在热、火防护科技上一直处于全球领先的地位，提供值得信赖的产品，如领先的耐火纤维，杜邦™的Nomex®纤维。并与符合全球标准的最先进测试，培训，产品选择工具结合，为跨行业的客户群服务。

“这些投资，提升我们的全球的热性能测

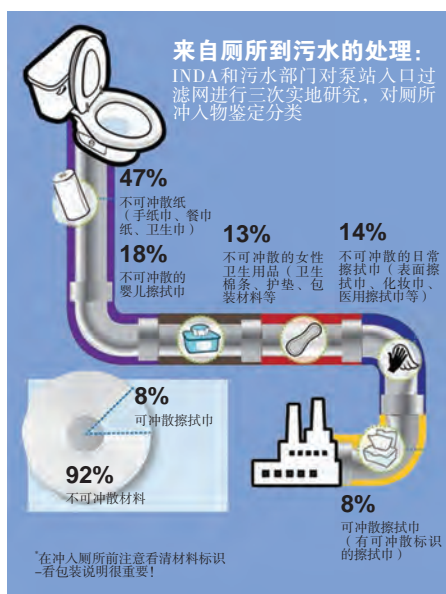


杜邦™热人仪®



杜邦™热人仪®测试

市场趋势



冲水马桶的五个误区

INDA解决了擦拭巾的可冲散性问题

可冲散擦拭巾因快捷及便利日益受到消费者青睐，但又因为废水的困扰而受到责难。什么才是真正的问题所在，非织造布行业如何与污水处理等相关部门协调合作找到解决方案？让我们先来看看有关擦拭巾可冲散性的常见误解。

误区1—擦拭巾是唯一该受到责难的

实际情况：消费者常常把很多未按可冲散设计和销售的物体冲入厕所。

联合污水处理部门所做的取样分析研究表明大约有90%的不可冲散物存在于厕所污水中。研究表明可冲散擦拭巾之外的那些材料是引发阻塞的主要原因。

废水滤网不是专门为纸巾、卫生巾、婴儿擦拭巾、妇女卫生用品及清洁消毒擦拭巾等冲散而设计的。真正的问题是消费者在厕所里冲的大部分物体根本就不是为可冲散设计的。

最大的罪魁祸首是纸巾，它始终是杂物中最大的部分，几乎占了50%。其次婴儿擦拭巾（本该卷在尿布里，然后扔进垃圾桶），之后是女性卫生用品，再是家居和个人护理擦拭巾。

在滤网上收集到的杂物经过鉴定发现只有8%是可冲散擦拭巾，因为堵塞一旦开始聚集效应就会发生了。甚至连厕纸都能在堵塞物中找到。人们在厕所中冲入的非可冲散设计的物体，不是仅仅靠专注于一个产品、行业或公司能解决的问题。我们确信沟通和引导才是解决问题的方法，同时我们依然致力于实现这一目标。

误区2—可冲散型擦拭巾不应该被冲入厕所

实际：经过可冲散设计加工并且经过了INDA/EDANA评估测试的擦拭巾可以安全地冲入设计合理、维护运行正常的城市下水道和净化系统。

在擦拭巾种类中，93%的擦拭巾的销售没有设计成可冲散的，销售推广也不是可冲散的，并附有不可冲入厕所的废弃处理使

用说明。这些不可冲散产品包括婴儿擦拭巾，硬物表面擦拭巾，抗菌擦拭巾，美容擦拭巾及许多其它种类的擦拭巾。但是，7%的擦拭巾经过特殊设计，不会危害污水处理系统，作为可冲散产品销售，以补充厕纸市场，并确实能安全的冲入厕所不造成危害。

这些经过精心设计的材料主要由天然纤维素纤维组成，纤维比其它擦拭的要短得多。短纤维在擦拭巾中抱合在一起达成其使用性能，当冲入厕所后会失去其整体性，分散开通过污水系统，最终的擦拭巾残渣碎片状态变得完全无法辨认。

可冲散擦拭巾需经过严格的可冲散性能评估测试，共有七个项目，确保能安全地通过污水系统并能在系统中完全解体，这样才能获得行业认定的“可冲散”名称（见INDA.org/可冲散）。这些测试方法是经行业专家们研究开发的，他们拥有解决这些问题所必需的丰富研发资源、技术及能力。INDA目前正为起草第四版评价测试方法做努力，起草委员会包括来自污水处理领域的主导协会的代表们（WEF，NACWA，AWWA，CWWA）修订的评估测试方法出版时间目标订为2016年6月。

误区3—行业在袖手旁观

实际：INDA正和许多生产商、污水处理部门、零售商和社团合作以建立有关安全处理废弃物方法的意识。INDA和他的成员在解决废水问题中起到了领导作用。我们不久将和其他产业集群的代表联系接触，这些产业集群的非擦拭巾产品产生90%残留物导致了各种问题。

INDA在2003年开始和污水处理行业进行对话，进而到了2012年开始和主要的污水处理协会对话，主题聚焦于提醒大众合理处置或者说不要随意在厕所冲掉那些真正造成污水系统堵塞的超过90%的废弃物。同时，我们也正在努力进一步强化可冲散性评估测试，产品必须通过测试以便它们真正在质量上符合“可冲散”并能被标上这一名称出售。INDA和污水处理行业在互相学习，共同努力解决问题上还有很长的路要走。

误区4—消费者不按照说明进行操作

市场趋势

INDA在不断鼓励擦拭巾生产商正确标识擦拭巾，让消费者清楚商品是否可以冲散。实际：公众引导和精心设计的外包装非常有效的减少了不可冲散产品带来的困扰。

引导消费者来妥善处理可冲散和不可冲散的产品，能有效减轻、减少废水处理的负担。据调查，在缅因州的波特兰市，由于INDA推出了与城市污水处理相关的公益教育广告，婴儿擦拭巾的冲洗数目即刻大幅下降下降了。

消费者也认识和了解产品包装上“不要冲洗”的标志。据调查，94%的消费者能一看就知道这个标志是什么意思。INDA和它的成员也与一些品牌有合作，把标志做得更加显眼。我们相信，消费者也希望做正确的事，看到正确的信息。

误区5—法律法规和标准才是解决方案

实际：改善产品快速灵活的做出响应，业界处于优势地位。

今年年初，在缅因州就有法案由于目标对象有误产生了误导性被否决。纽约、新泽西州、加利福尼亚州、华盛顿州和加拿大的司法管辖区也都在考虑想要立法。我们相信引导比起立法，是更好的解决方案。

直接去掉可冲散擦拭巾的类别将使问题变得更糟：消费者将用不可冲散产品来取代冲散型产品。可冲散擦拭巾满足了消费者实际的卫生需求，他们有权做出选择和明智的决策。

寻找万全之策

问题只能通过各个群体团结协作才能解决，包括有INDA，消费者，生产商，品牌拥有者，污水处理组织和社团。在这一行业我们需要合作，通过各式各样的擦拭巾的品牌所有者建立并遵守我们的行为准则。我们也希望那些和纸巾、女性卫生用品相关的行业也能使用“不可冲洗”的标志。除此之外，污水处理协会和其他团队的合作发展必须继续。最后，还需要继续进行引导和公众宣传活动，有助于提高大众安全意识，告诉大家如何处理卫生间内使用的产品，让大家知道厕所并不是垃圾桶。

(资料来源: "www.nonwovens-industry.com")

女性卫生用品市场

女性护理用品的制造商正以市场营销、教育、新技术战胜不断增长的挑战

在女性卫生用品市场的挑战与过去数年的相同。在美国和西欧等发达地区，这些产品的制造商不得不对高普及率及因人口老龄化而不再使用护垫和卫生棉条。在普及率低的新兴市场，生产商们正谋求在月经话题被视为禁忌的发展中国家培育增长点。尽管有这些挫折，企业们仍在想方设法保持用品市场的增长。

据欧睿国际的市场调研，从2009至2014年，卫生防护类产品的复合年增长率为3.10%（以定值美元计）。这些应归功于新兴市场。据欧睿公司的数据显示，在2009至2014年时期，中国在卫生防护领域的复合年增长率为8%（以定值美元计），独占鳌头。紧随其后的是俄罗斯和巴西分别增长了2%和0.8%。综合这些数据，2014年至2019年，新兴市场的预期年增长率为5%。另一方面，2009年至2014年期间，发达国家的年复合增长率下降了1.07%，2014年至2019年，这些高度饱和的市场，卫生防护产品的预期年复合增长率仅为0.2%。

Uduslivaia指出，尽管中国已经有了最大的增长，但这个世界上人口最多的国家正在接近饱和点。导致中国高增长的原因之一是中国妇女有了较高的可支配收入。Uduslivaia指出，这种较高的可支配收入解释了一些在产品开发方面的倾向。在中国，我们仍然高度重视中等价位高溢价产品，并且消费者对此类产品有强烈的偏好。

在印度，人均消费仍落后于中国这样国家，有许多传统障碍影响女性使用卫生防护用品。她说：“在这些地区我们看到的很多制造商致力于与当地社区合作，提高妇女的教育和社会地位以培养她们使用现代卫生用品。”可支配收入在印度也是一个挑战，所以预计卫生用品品牌中经济型低价位的产品会增长。Uduslivaia解释说：“这并不一定意味着这些品牌的质量差，它们只是在价位上竞争，帮助可支配收入较低的妇女更多的使用卫生产品。”

谈到发展中国家的教育，全球吸收性卫生用品市场的领导者爱生雅是推动经期教育的品牌之一。自1989年以来，该公司通



市场趋势

过为世界各国提供卫生教育讲座，为消除对经期的误解和不方便的产品作了重大努力。根据爱生雅2014年可持续发展报告，自讲座开始以来，1200万拉丁美洲、亚洲和欧洲国家的女性参加了这一项目。据爱生雅失禁护理欧洲公司和全球卫生业务公关副总裁Harold Smolders透露，所有课程都在当地进行，仅在哥伦比亚就已经有900000个女孩加入了公司的项目。他说：“在这些课程中，女孩会知道在青春期中，她们的身体会发生什么变化以及相应的时间段。”

在发展中国家，各种宗教、文化和传统的信仰导致对于经期有许多误解。援引2013年水资源公益组织WaterAid的全球年报，Smolders称伊朗一半的女孩，印度十分之一的女孩认为月经是一种疾病，他还补充道，同样的研究显示，南亚三分之一的女孩在经历月经之前对其一无所知。作为其致力于消除月经误解的一部分，爱生雅从去年开始与联合国供水和卫生合作理事会（WSSCC）合作。Smolders说：“通过合作，爱生雅的目标是打破每天危及数百万妇女健康的月经禁忌和提高对于良好经期卫生重要性的认识。”爱生雅去年已与WSSCC为南非和中国女孩联合举办了培训班。

此外，Smolders说，在发展中国家的市场，该公司已经增多了家庭式商店中产品的分布，提供更经济的产品种类，并提供更小的包装规格，让发展中国家贫困地区的女性负担得起女性护理产品。同时，在发达国家，生产商正用特殊的营销策略尽最多努力保持品牌忠诚度。据Uduslivaia表示，首先是通过“升级”。方法之一是提升、采用最新技术，使产品更舒适，更有效防止泄漏。其次，包装已做得越来越吸引眼球，有趣和丰富多彩，使产品在货架上引人注目。

零售商和品牌商的另一种策略是把女性护理和轻度失禁产品联系在一起。越来越多的零售商正将女性护理和轻度失禁产品并排展示，Uduslivaia说：“这是厂商和品牌商尝试让顾客建立跨越不同生理时期的品牌忠诚度，其本质是在卫生护理产品的需求相当低的条件下，保持增长和收入的对策之一，欧洲需求低迷是由于市场饱和及人口老龄化。”

女性护理品牌也推出同品牌的成人尿失禁产品。近期上市的Always Discreet就是一个例子。于2014年8月推出的该系列，包括衬垫、护垫和失禁裤，以女性化的设计提供舒适性，防护性和隐蔽性，可以迅速吸收泄漏和气味。Always Discreet的衬垫应对轻泄漏，护垫应对轻或中度泄漏，失禁裤应对较大泄漏。宝洁公司资深科学家Laura Goodman女士说：“每个人都知道Always Pads是用于经期防护的，现在我们为尿漏防护推出了它的姐妹版。”

据宝洁公司称，根据普通消费者使用失禁产品的方式，Always Discreet护垫比领先品牌薄了高达40%，可吸收两倍于女性所需的液量。Always Discreet的产品还含有独特的气味锁定技术，可快速和持续的中和异味。Goodman说：“Always Discreet已经开发了数年，依靠丰富的产品和技术的开发并进行了涉及全球成千上万妇女的市场调查。”

Always Discreet看似已经取得了一些成功，其最近入围了美国非织造布协会INDA的远见奖，只有时间能告诉我们是否能通过两种不同类别的产品，使消费者坚持品牌忠诚度。Uduslivaia说：“一些市场中的消费者喜欢区分品牌，他们知道哪些品牌是卫生防护的专家，哪些品牌是失禁处理的专家，因此跨界不一定适合每一个市场。”

推出很多新产品

品牌正在尝试保持增长的另一个方式是推出拥有最新技术的新产品，去年已推出了一系列新的女性护理用品。

在卫生防护领域的顶级公司一宝洁，在今年早些时候推出了Tampax Pocket Pearl系列。新的卫生棉条是Tampax Pearl产品的袖珍版，为女孩提供了隐蔽和防护。新型软包装带有穿孔边缘，能够方便并静谧的打开。更小的卫生棉条也是巴掌大小，即使在最小的口袋里也只占很小的空间，方便且隐秘。Tampax Pocket Pearl也是唯一的紧凑型卫生棉条，具有独特的Built-In Backup编织设计，可将流出的液体送回吸收芯，以普通棉条不能做到的方式提供保护。这个额外的防护层有助于捕捉通常会绕过其它卫生棉条的泄漏，将液体保持并锁定在核心部分。此外，新的FormFit技术能更好的消除产生泄露的缝隙，给女性一个额外



市场趋势

的保护层。

另外，采用符合潮流、令人心动、吸引眼球的设计，Tampax Pocket Pearl卫生棉条颇具特色的四个包装设计由年轻女孩们共同创造，为女性卫生用品提供时尚的款式。外观是根据最新的模式、颜色、图形和流行趋势设计的。

与此同时，金佰利今年在U by Kotex品牌下推出了一些项目。今年夏天，其推出了U by Kotex安全超薄护垫。该护垫特点是采用3D捕捉芯层——独一无二的中心层，可锁水、阻止泄漏，还有新的可快速吸收的Xpress DRI包覆面层。U by Kotex CleanWear超薄护垫也有3D捕捉核心和Xpress DRI。这两种护垫都包括用以安全贴合的特型护翼和用以达到“特级干爽保护”的超薄、四层吸收系统。

澳大利亚和新西兰金佰利在澳大利亚推出了U by Kotex运动超薄系列，轻薄和柔韧的护垫专为享受健身、娱乐和积极健康生活方式的女性们设计，她们担心目前的护垫防护不能满足她们需求。该新产品专为保护运动中的女性而设计。具有超吸水性的柔韧芯层被塑造成的形状可随身体移动保持贴合，即使是最剧烈的锻炼过程中，新的超薄护垫设计也能让女性舒适并提供保护。此外，运动超薄护垫有“不移位”的护翼，和一个透气、快干、超薄、隐蔽的包覆层。

澳大利亚金佰利的运动超薄护垫是U by Kotex系列运动护垫的第二种产品，之前的运动衬垫于2013年推出，针对经期外运动而设计，帮助女性在锻炼中保持干爽。同时瞄准运动女性的还有Edgewell个人护理公司（原Energizer个人护理）的Playtex品牌。针对女性护理市场，该品牌推出了其第一款运动级保护的超薄衬垫与护垫，并以Playtex Sport为名。该品牌曾推出360°运动保护的Playtex运动卫生棉条。超薄护垫和衬垫运用创新技术，包括一个薄的和灵活的，可随身体运动而曲折的FlexFit设计，在产生气味之前中和气味的OdorShield技术，和迅速吸收液体和潮气的Qwik-Dry技术，使女性感到干爽和自信。该品牌还在两个品种中提供了方便的组合包：运动卫生棉条和衬垫，运动卫生棉条和护垫。

今年，爱生雅改进了其衬垫组合。据Smolders称，产品更加透气和加入温和的乳酸以保持用户的酸碱平衡。他说：“这意味着现在我们的衬垫不仅是保护你的内衣，还可以保护你的皮肤。”去年年底，瑞典公司还推出了一个跨界的创新卫生处理解决方案，称为“Roll.Press.Go”，使卫生用品的处理更隐蔽。Roll.Press.Go包装每一边都有自密封边缘。卷起使用后的护垫装入包装，压紧自密封边缘，护垫就被牢牢地包裹在包装封袋里，而后扔掉或随身带走。

棉花的使用越来越多

随着越来越多的女性寻求更多天然或健康的产品，近年来棉花在女性卫生用品市场的占比持续增长。Organyc品牌女性护垫、卫生棉条、月经垫等的意大利制造商Corman，更主张提供首次完全有机认证的女性护理产品。据Corman公司卫生品牌市场销售经理Paola Stevan称，顺应市场发展趋势，Corman公司使用棉花，更具体的说是GOTS（全球有机纺织品标准）认证的有机棉。她解释说：“随着消费者越来越重视卫生和健康，消费者的态度和行为都受到了影响。消费者更加关心自己的身体，重视饮食和营养，天然和有机食品、商品和纺织品。此外，消费者更关心他们周围环境。有机、天然、可回收和节能设备，清洁和建筑产品消费的增长也证明了这点。”

（下转44>>>）

Catbridge推出重型表面摩擦式卷绕机 新卷绕机缩短了生产周期

Catbridge机械推出了一种新型用来显著提高生产力和安全性的重型表面摩擦式卷绕机。省时的特点缩短了生产周期，也使每班次可处理更多的大卷装。这些特征包括一个坚固的无轴移动放卷装置，高功率的液压系统，导布和轴心定位辅助装置，内芯直径预置和最新型的成品卷切换流程。此外，全面的安全系统贯穿整个分切复卷工序以保护机器操作者。该系统使用降低风险的设计以及器件，诸如安全PLC，防护装置和传感器。除了吞吐量和安全性优势，215表面摩擦式卷取机提供了很宽的张力控制范围，即可处理很厚重的材料也可用于非常轻质的材料。215运行速度为每分钟4000英尺，复卷直径为60英寸，更有一个复卷直径为84英寸产品。

（资料来源：“www.nonwovens-industry.com”）

2015年中国大陆 非织造材料产量

全国非织造科技信息中心

2015年非织造材料按加工工艺分类的产量比较

| 加工工艺 | 2013年 | | 2013/2012 | 2014年 | | 2014/2013 | 2015年 | | 2015/2014 |
|--------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 产量 (万吨) | 百分率 (%) | 增长率 (%) | 产量 (万吨) | 百分率 (%) | 增长率 (%) | 产量 (万吨) | 百分率 (%) | 增长率 (%) |
| 纺熔 | 114.0 | 47.76 | +8.57 | 122 | 46.29 | +7.01 | 137 | 46.58 | +12.3 |
| 其中: 纺粘 (含纺粘与 熔喷复合) | 110.5 | 46.29 | +8.33 | 118 | 44.78 | +6.79 | 132.5 | 45.05 | +12.28 |
| 熔喷 | 3.5 | 1.47 | +16.7 | 4 | 1.52 | +14.29 | 4.5 | 1.53 | +12.5 |
| 干法成网 | 114.9 | 48.14 | +12.92 | 131.4 | 49.86 | +14.36 | 145.7 | 49.54 | +10.73 |
| 针刺 | 57.5 | 24.09 | +8.49 | 63.5 | 24.09 | +10.43 | 68.2 | 23.19 | +7.40 |
| 化学粘合 | 11 | 4.61 | +2.80 | 11.5 | 4.36 | +4.5 | 12 | 4.08 | +4.35 |
| 热粘合 | 13.3 | 5.57 | +9.02 | 13.4 | 5.09 | +0.75 | 13.5 | 4.59 | +0.74 |
| 水刺 | 31.5 | 13.20 | +29.62 | 41.5 | 15.74 | +31.75 | 50.4 | 17.14 | +21.45 |
| 缝编 | 1.6 | 0.67 | +3.22 | 1.5 | 0.57 | -6.25 | 1.6 | 0.54 | +6.67 |
| 干法造纸 | 8 | 3.35 | +2.56 | 8.2 | 3.11 | +2.5 | 8.4 | 2.86 | +2.44 |
| 湿法成网 | 1.8 | 0.75 | +2.86 | 1.9 | 0.72 | +5.56 | 3 | 1.02 | +57.9 |
| 合计 | 238.7 | | +10.36 | 263.5 | | +10.39 | 294.1 | | +11.61 |

2015年中国大陆非织造材料主要用途

| | 2013 | | 2013/2012 | 2014 | | 2014/2013 | 2015 | | 2015/2014 |
|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 产量 (千吨) | 百分比 (%) | 增长率 (%) | 产量 (千吨) | 百分比 (%) | 增长率 (%) | 产量 (千吨) | 百分比 (%) | 增长率 (%) |
| 医疗卫生用品 | 910 | 38.12 | +15.62 | 1050 | 39.85 | +15.38 | 1196 | 40.67 | +13.90 |
| 絮片 | 192 | 8.04 | +3.78 | 202 | 7.67 | +5.21 | 217 | 7.38 | +7.43 |
| 包装材料 | 230 | 9.64 | +3.60 | 240 | 9.11 | +4.35 | 274 | 9.32 | +14.17 |
| 擦拭清洁材料 | 233.4 | 9.78 | +14.41 | 269 | 10.20 | +15.22 | 318 | 10.82 | +18.22 |
| 土工合成材料 | 140 | 5.87 | +7.44 | 145 | 5.50 | +3.57 | 151 | 5.14 | +4.14 |
| 涂层复合基布 | 77 | 3.23 | +1.32 | 80 | 3.04 | +3.90 | 84 | 2.86 | +5 |
| 防水材料、 油毡基布 | 89 | 3.73 | +7.23 | 92 | 3.49 | +3.37 | 96 | 3.27 | +4.35 |
| 家具内饰 | 69 | 2.89 | +4.55 | 71 | 2.69 | +2.89 | 74 | 2.52 | +4.22 |
| 衬布 | 46 | 1.93 | +2.22 | 47 | 1.78 | +2.17 | 48 | 1.53 | +2.13 |
| 鞋材 | 43.5 | 1.82 | +3.57 | 44.5 | 1.69 | +2.29 | 46 | 1.56 | +3.37 |
| 汽车内饰 | 120 | 5.03 | +12.15 | 129 | 4.90 | +7.5 | 138 | 4.70 | +6.9 |
| 过滤材料 | 150 | 6.28 | +13.46 | 175 | 6.64 | +16.67 | 206 | 7 | +17.71 |
| 农业 | 15.3 | 0.64 | +2.68 | 16.3 | 0.62 | +6.54 | 17.1 | 0.59 | +4.91 |
| 造纸毛毯 | 9.5 | 0.40 | -2.06 | 9.7 | 0.37 | +2.11 | 9.9 | 0.34 | +2.06 |
| 其他 | 62.3 | 2.61 | +5.77 | 64.5 | 2.45 | +3.53 | 66 | 2.25 | +2.33 |
| 总计 | 2387 | | +10.36 | 2635 | | +10.39 | 2941 | | +11.61 |

地区报告

总体来看，2015年中国大陆的非织造布生产情况顺利平稳。总产量年增长率+11.61%，高于GDP增长率。由于各种成本上升以及全球经济低迷的影响，企业利润较之前有所降低，某些产品的市场增长缓慢（如油毡基材、短纤土工布）。

按工艺来分：

1) 干法

水刺产品数量增加仍很快，达21.45%（如卫生材料、医用材料产量增大）

2) 纺熔

纺粘和熔喷生产线产量增加，由于较多SMMS生产线投产，SMMXS产量大幅增长，因此纺熔加工工艺类产量增加达12.3%（医保卫生用品增量）。

3) 湿法生产线数量增加，湿法产品的产量增长高达57.9%。

湿法成网加工工艺的非织造产品增长很大，主要是由于采用湿法成网加工工艺的医疗卫生用品其产品成本低、产量高、投资比有利，受到企业青睐以及引进欧洲生产线也助推了此类加工工艺产品的增长。

按产品用途分：

※ 医疗卫生用产品产量增长较高，达

13.90%

※ 擦拭清洁材料产量增长18.22%

※ 过滤产品产量增加达17.71%

※ 土工合成材料生产缓慢（因短纤土工合成材料逐渐被涤纶纺粘产品所取代）

※ 油毡基材产量增长缓慢

※ 2015年中国汽车产销仍达2450万辆，由于新型非织造内饰应用增加，汽车内装饰产量仍有6.9%的增长

挑战和机遇

1) 非织造产业结构、产品结构和技术结构有待调整

2) 提高高附加值产品所占比例

鉴于中国的工业化、大规模的城镇化和可持续和谐发展战略的引导，“创新与转型发展”、“一带一路国家发展战略”以及放开二胎和快速步入老龄化社会，大健康、大医疗已成为未来最有生命力和潜力的发展趋势，中国非织造材料工业具有巨大发展潜力。

到2020年，中国的非织造布产业不仅在数量上将继续增长同时也会提高产品质量和产品附加值。

(<<<上接42页)

Stevan说，纯棉护垫的透气性比不含棉的护垫更好，由纯棉非织造布制成的面料具有低过敏性。Organyc的100%纯棉芯层具有高吸收性和确保最大限度保护的护翼。

Stevan 补充道：“Organyc女性护理系列中使用的棉花在生长过程中不用人工杀虫剂、利用天然害虫治理系统维护生物多样性，使棉的生长与环境和谐。”最近，Organyc已经为新妈妈推出了两个新产品：初产妇垫、护理垫。初产妇垫由100%有机棉制成，尤其是为分娩后女性的柔弱肌肤创造的。妇垫为初产分娩后的大流量提供超吸收性。该垫的透气性并可生物降解的保护膜，使空气流通，有助于愈合和减少感染的风险。据公司表示，Organyc 100%有机棉护理垫具有天然吸收性、透气性和舒适性。

Organyc在美国最新的竞争对手是Honest公司，其在今年夏天推出了全方位GOTS认证的有机棉女性护理产品。Honest女性护理系列包括护垫，衬垫和卫生棉条。新的超薄护垫自然透气柔软，有最大的舒适性，并有常规性能和超吸收性，而衬垫具有标准的尺寸和可选的内裤款式。Honest卫生棉条可带或不带紧凑型棉条施放器，施放器可向各个方向扩张，从而更自然、安全的贴合和增强泄漏保护。据Honest公司称，其使用的有机棉提供了卓越的质量及优异的天然吸收性，能够迅速锁住水分，提供可靠的保护和pH相容性。新型女性护理系列过敏性低，不含粘胶、人造香料、除臭剂、染料、邻苯二甲酸盐、残留农药、甘油三辛酸酯、氯或不经二氧化氯处理。

(来自：“www.nonwovens-industry.com”)

非织造电池隔膜的现状

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技术发展分部

- * 电池概述
- * 可再充电碱性电池（镍-铬，镍-氢）及电池隔膜
- * 电池隔膜的应用（镍-铬，镍-氢）
- * 非织造布的生产流程
- * 碱性电池隔膜设计的重要性
- * 原材料：纤维（皮芯复合纤维，分裂纤维，超细纤维）
- * 隔膜基材的比较
- * 亲水处理方法的种类
- * 隔膜设计与电池性能的关系
- * 锂离子电池的应用

电池概述

| | |
|------------------------------------|----------------|
| 一次性电池： | 只能间断性使用 |
| 锌-碳电池 | 纸张（浆粕） |
| 碱性电池 | 纸张（浆粕），非织造布 |
| 可再充电电池： | 通过充电和放电可多次循环使用 |
| 铅酸电池 | 纸张（玻璃） |
| 镍镉电池（Ni-Cd） | 非织造布 |
| 镍氢电池（Ni-MH） | 非织造布 |
| 锂离子（Li-ion），聚合物锂电池（Li-ion polymer） | 膜（非织造布） |

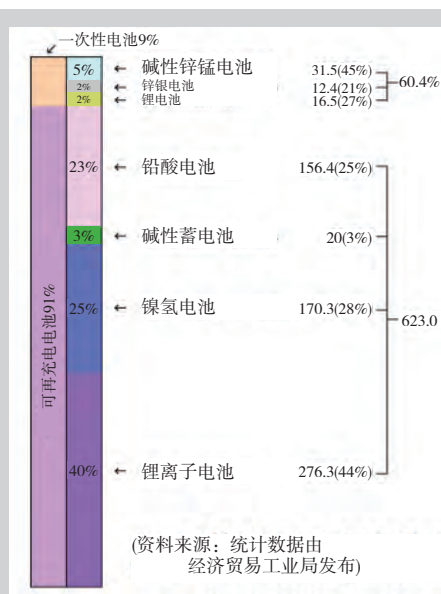
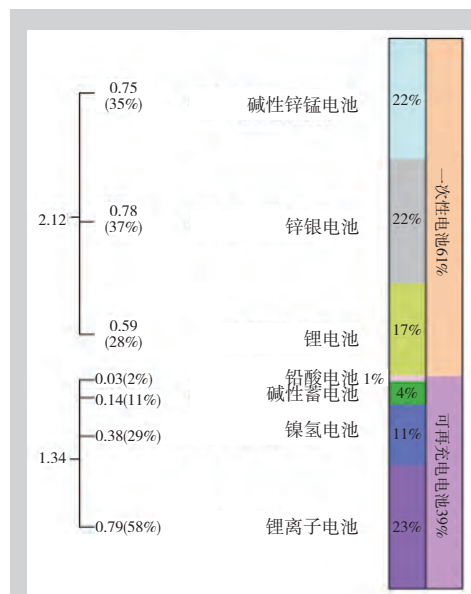
电池历史

- 1800：Volta（意大利）发明了伏打电池
- 1964：镍镉电池在日本开始使用
- 1990：镍氢电池产品在日本开始使用
- 1991：可再次充电的锂离子电池在日本开始使用

2013年全部电池产品统计数据（日本年历）

按数量计算的总产量：34.6亿单元（单位：1亿）

按价值计算的总产值：6834亿日元（单位：1亿）



（资料来源：统计数据由
经济贸易工业局发布）

可再充电碱性电池及电池隔膜

镍铬

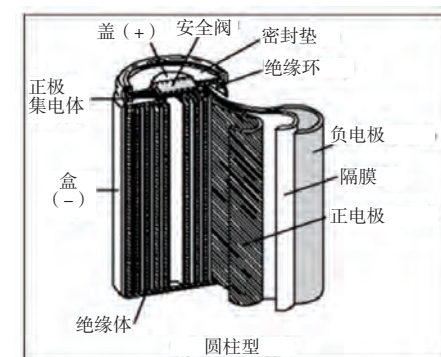
正极： $\text{NiOOH} + \text{H}_2\text{O} + \text{e}^- \rightarrow \text{Ni(OH)}_2 + \text{OH}^-$

负极： $\text{Cd} + 2\text{OH}^- \rightarrow \text{Cd(OH)}_2 + 2\text{e}^-$

镍氢

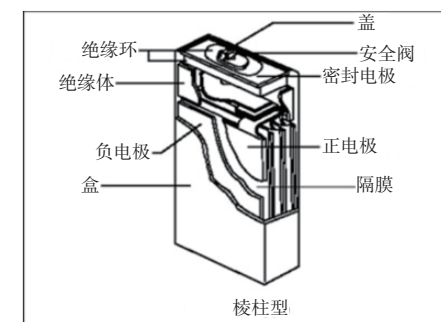
正极： $\text{NiOOH} + \text{H}_2\text{O} + \text{e}^- \rightarrow \text{Ni(OH)}_2 + \text{OH}^-$

负极： $\text{MH} + \text{OH}^- \rightarrow \text{M} + \text{H}_2\text{O} + \text{e}^-$



隔膜开发的关键如下：

- 1) 良好的均匀性
- 2) 保持牢固的强力
- 3) 电解质保持能力高
- 4) 良好的永久润湿性
- 5) 持续抗短路（在卷绕电极和隔膜的时候）
- 6) 成本



电池隔膜的应用（镍铬，镍氢）

商业用电池



电力工具用电池



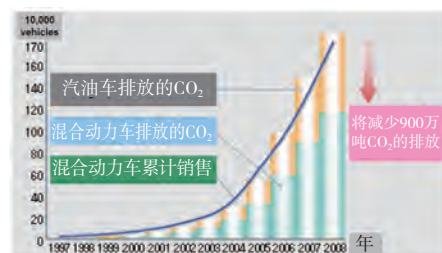
技术信息

动力电池（混合动力汽车, 电动自行车）



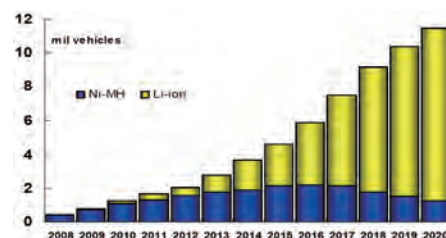
- * 可再充电电池隔膜（镍镉电池及镍氢电池）
- * 便携设备电源（移动手机，数字摄像机，DVD播放器，PDAs）
- * 电池隔膜（用于电动工具的电源）
- * 用于移动性设备（电池隔膜用于混合动力汽车及电动自行车）

混合动力汽车导致CO₂减少



170万混合动力车将减少900万吨CO₂的排放。

混合动力车和电动汽车全球市场的预测HV& EV（摩根大通证券）



2015年的发展状态

- 镍氢电池：用于混合动力车的主要电池
- 锂离子电池：部分用于电动车

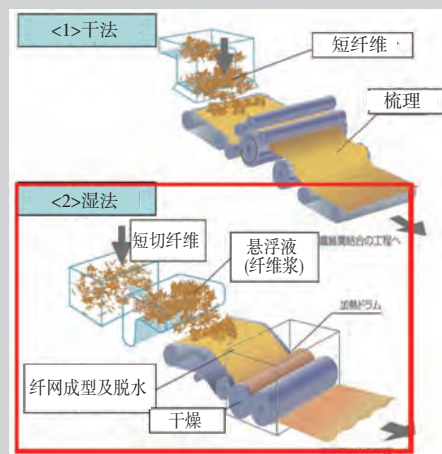
2015年后未来发展

- 镍氢电池：逐渐减少*
- 锂离子电池：混合动力车和电动车的主要电池

碱性电池隔膜的发展

- 大容量，高能量密度的小型再充电电池90年代取得了显著的发展和进步。
- 大容量电池需要增加活性材料的体积并且减少电池隔膜的体积。
 - 镍镉电池隔膜厚度: 150 μm-200μm.
 - 镍氢电池隔膜厚度: 100μm-150μm
- * 为减少厚度：完善电解液驻留性及高强基材的性能
- * 为避免电池容量的自动放电：改变纤维种类
 - 尼龙→ 经过亲水表面处理的聚烯烃纤维
 - 发展聚烯烃基材以及适宜的表面处理

非织造布的生产流程（成网）

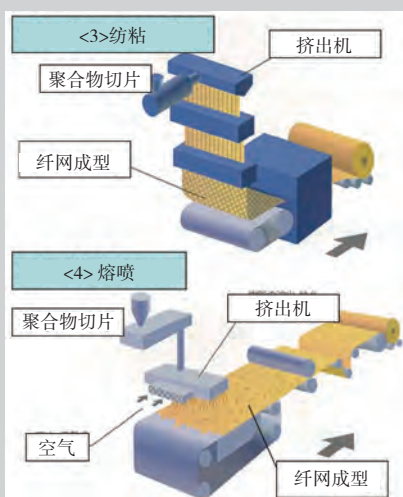


应用:

- 隔膜
- 制药基材
- 空气过滤材料
- 衬里
- 汽车组件

应用

- 隔膜
- 电绝缘材料



应用:

- 医疗, 卫生材料
- 建筑, 农用材料

应用:

- 空气过滤材料
- 滤芯

5) 持续抗短路

(在卷绕电极和隔膜的时候)

— 基材 (均匀性)

6) 成本

生产工艺

* 湿法成网, 干法成网 = 熔化(纤维固结) = 卷绕

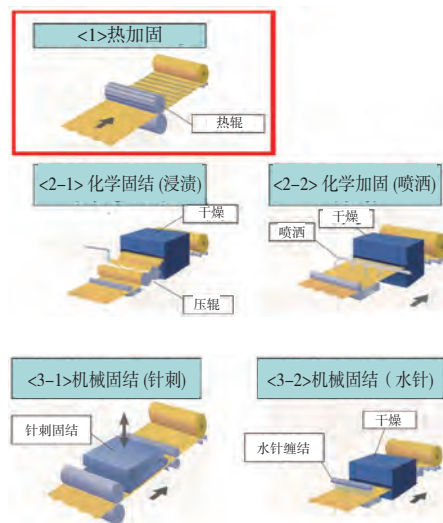
→ 亲水处理 → 轧光 → 检查

* 基材的设计 → 选择合适的表面处理 → 碱性电池隔膜

原材料: 纤维

| 截面 | 种类, 特性 |
|----|-------------------------|
| | 皮芯纤维 (如: PP/PE) 粘结纤维 |
| | PP 纤维 单组份纤维 |
| | 超细PP纤维 |
| | 分裂纤维 (如: PP/PE) 细纤维 |

非织造布的生产流程 (固结)



生产工艺

湿法成网, 干法成网 = 熔化(纤维固结) = 卷绕
→ 亲水处理 → 轧光 → 检查

隔膜基材的比较

电池隔膜的种类
(基材)

| | 强力 | 均匀性 | 密度 |
|----|----|-----|----|
| 熔喷 | -- | - | ++ |
| 纺粘 | + | - | - |
| 干法 | ++ | + | + |
| 湿法 | ++ | ++ | ++ |

++ (最好) → +(好) → - → --(差)

亲水处理方法的种类

亲水处理的目的

聚烯烃基的非织造布具有拒水表面 → 改善对电解液的润湿性

亲水的种类

- 1) 磺化处理
- 2) 氟化处理
- 3) 等离子处理
- 4) 丙烯酸接枝处理
- 5) 电晕处理

碱性电池隔膜设计的重要性

隔膜开发的关键如下:

- 1) 良好的均匀性
— 纤维, 基材 (干法, 湿法)
- 2) 保持牢固的强力
— 固结, 纤维
- 3) 电解质保持能力高
— 细纤维, 表面处理
- 4) 良好的永久润湿性
— 表面处理

技术信息

隔膜经表面处理后的的不同特性

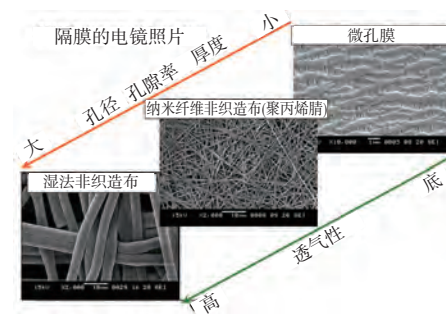
| | 电解液保持性 | 电解液吸附性 | 化学稳定性 | 自动放电 | 成本 |
|-------|--------|--------|-------|------|----|
| 表面活性剂 | -- | + | -- | -- | ++ |
| 电晕 | -- | + | -- | -- | ++ |
| 等离子体 | + | ++ | - | -- | ++ |
| 氟化作用 | + | ++ | + | - | ++ |
| 磺化 | ++ | - | ++ | +++ | - |
| 接枝 | ++ | + | + | ++ | - |

| | |
|-----------------|---------------|
| □ 非织造布 | (缺点) |
| • 高孔隙率 (60-90%) | 短路 |
| • 不同材料的复合 | • 大孔径 (> 5μm) |

锂离子隔膜的发展

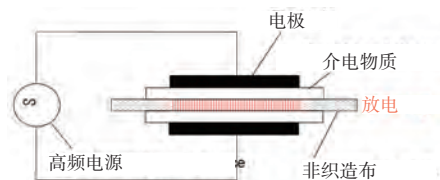
- 1) 单组份纤维隔膜 (聚丙烯腈)
- 2) 无机涂层隔膜

采用纳米纤维非织造布在锂离子电池隔膜上的应用

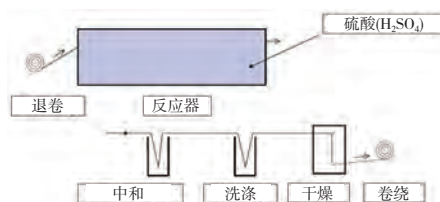


等离子体处理

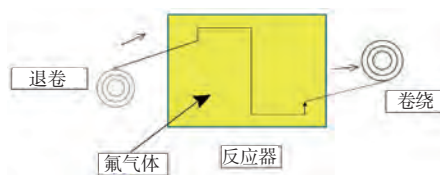
等离子体处理: 大气压力 (日本宝翎公司原创)



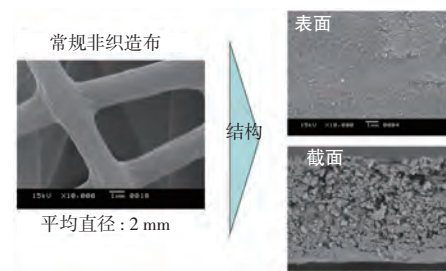
磺化处理



氟化处理



无机涂层隔膜



隔膜与电池性能的关系

| 电池 | 隔膜 | 重量 | 厚度 | 处理 | 透气性 | 纤维直径 | 亲水性 |
|------|----|----|----|-------|-----|------|-----|
| 容量 | | | ↓ | | | | |
| 自放电 | | ↑ | ↑ | S+G | | ↓ | |
| 电压 | | ↓ | ↓ | | | | ↑ |
| 内阻 | | ↓ | ↓ | | ↓ | ↓ | ↑ |
| 高速率 | | ↓ | | | ↑ | | ↑ |
| 循环寿命 | | ↑ | ↑ | S+F+P | ↑ | ↓ | ↑ |
| 内压 | | ↓ | ↑ | | ↑ | ↓ | ↑ |
| 短路 | | ↑ | ↑ | | | ↓ | |

S: 磺化, G: AA 接枝, F: 氟化, P: 等离子

非织造布锂离子隔膜的发展

聚烯烃微孔薄膜与典型非织造布的比较

| | |
|-------------------|-------------------|
| □ 聚烯烃微孔薄膜 | (缺点) |
| • 更薄 (< 25μm) | 耐热性 |
| • 机械强力 | • 更低的孔隙率 (40-50%) |
| • 小孔径 (0.1-0.3μm) | |
| • 关闭功能 | |

总结

- * 可充电电池的发展实现了在电器领域的各种应用, 预计未来将继续发展。
- * 未来, 动力应用领域将扩展新型电池的应用。
- * 由于环境法规将越来越严格, 可充电电池在混合/电动汽车上的应用必将增长。
- * 混合动力车已经在全世界销售了200万辆, 在未来5年该需求预计将达到1000万辆。
- * 如今镍氢电池主要应用在该领域。
- * 未来, 锂离子电池将逐渐成为主流。
- * 日本的制造商在电池相关的组件如电池隔膜上具有优势。
- * 中国及韩国制造商正迫切期望在电池及电池应用领域的发展。
- * 日本宝翎公司已经成功研发了用于锂离子电池的陶瓷复合非织造隔膜。

技术发展趋势

表面形态学在宝洁地板清洁布的研发中发挥重要作用

近几年，家庭保洁变得更加轻松，耗时更少，因为大量新型清洁的化学配方以及擦拭工具被引入，其中大部分擦拭工具使用了非织造布技术。地板清洁时通过使用保洁Swiffer®清洁器，清理小液滴、飞绒、食物碎屑、灰尘和脏污变得更加容易。该产品使用了可更换非织造布使碎屑清洁更加容易。非织造清洁布的性能充分考虑了两方面的性能，首先是碎屑的捕捉能力，第二方面是地面各种碎屑与非织造布最初接触时工具前端的性能。为了提高清洁布的性能，公司先后研究了不同的三维非织造结构，压花、带电物质以及碎屑捕捉添加剂（在干燥和潮湿环境下采用不同添加剂）。

在这篇保洁公司的专利中公开了一种清洁能力以及地面碎屑捕捉能力都得到提高的三维地板清洁布。改善的性能中重要的是通过控制中间层网格的收缩形成一种带有凹陷和凸起的三维结构。凸起部分是由柔软，易变形的擦拭部分构成有助于清洁，而凹陷部分提供空隙用于碎屑的捕获。油剂或蜡添加剂不仅有助于碎屑的捕捉，同时还可以作为其他添加剂如抗菌剂的载体。凸起沿着凹陷部分朝各个方向延伸从而可以提高清洁布的性能，因为在地板清洁的时候底座会朝着不同方向移动。

将非织造垫的微观表面质地与污物粘合添加剂相结合，可以显著提高非织造布清洁性能。这种结合方式使清洁布与污物之间有很好的粘合，良好的清洁作用，控制空气中的粉尘，成为消费者的首选对象，尤其是对其触觉印象非常好。油或蜡添加剂同样可以作为其他有效成分的载体。有效成分的例子包括香味剂、害虫控制成分、抗菌剂、杀菌剂以及其他一些可溶或可分散在油剂或蜡中的成分。

最让我们感兴趣的是宝洁量化更有效的去除并且捕捉地面的碎屑的方法。以微观三维纹理的峰、谷表面形态指数来表征其特点，该指数的定义是平均峰高的微分除以峰高之间的距离得到的比值。表面形态指数的最优值位于0.3-2.0这个范围之间。较满意的凸起长度被控制在1.5-2.0cm之间。

三层结构包括1.5旦的涤纶制成的30g/m²的水刺布，该水刺布与聚丙烯/EVA热收缩稀松网格布或非连续地粘结在一起。EVA聚合物作为粘合剂分布在两个表面。该网格布加热前每英寸有3×2根长丝，加热后变为每英寸2.5×3.5至3.5×4.5根长丝。可选的网状聚合物包括聚丙烯或聚乙烯聚合物和共聚物，聚对苯二甲酸丁二醇酯，聚对苯二甲酸乙二醇酯，尼龙6，尼龙66。

层与层之间的热粘合与垂直排列的长丝保持一致，从而在根本上达到理想的热收缩程度以及最终的纤网结构。粘结工艺使外层的表面结构与长丝构成的网状结构中的孔洞形状相互分离。使用低压< 25 psi粘合工艺，持续时间< 30秒以便达到非连续的粘结。

网状结构与清洁布长和宽的角度最好在30-60度之间。这种长丝的取向阻碍结构与布边发生平行的变形，从而使清洁布具有类似弹性的行为。在这里，类似弹性的行为是指在拉伸状态下伸长率至少达到120%，且其回复状态与松弛状态相差10%以内。

根据公开的制备工艺，首先形成一个三明治结构，其中两层非织造布作为面层、中间夹一层网格布。该结构在热的作用下粘结并发生收缩。网格布上EVA胶在温度达到85℃时被激活。面层可以选择一种材料或者两个面可以选择不同的材料。清洁布的工作面层可以是机织布，非织造布，纸，泡沫或者絮状材料。理想的面层最好是采用气流成网，湿法成网或者梳理工艺、含有一定杂乱程度的纤维或长丝纤网非织造布。

适合的污物粘合添加剂可以是矿物油，凡士林等，蜡可以是不同种类的碳氢化合物，脂肪酸以及脂肪醇。可以使用的动物以及植物蜡包括蜂蜡、鲸蜡、羊毛脂、虫胶和小烛树蜡。油和蜡的混合物最好以1:1的比例、以总量的4-6%添加。
(资料来源: "Nonwovens Market")

欢迎投稿

产品集锦

爱生雅推出新的优质尿裤

Libero Touch提供高质量，良好贴合和更柔软的手感

经过爱生雅在瑞典哥德堡的创新中心两年的集约开发，推出了**Libero Touch**尿裤。新尿裤的开发和测试涉及数百名儿童和他们的父母。

爱生雅全球品牌创新经理**Linus Clausen**说：“结合我们的经验并与孩子的父母及尿裤专家联合进行了深入的研究，通过全面的测试和高度优化的产品改良，开发了新的**Libero Touch**尿裤，它是超柔软和亲肤的创新。”

Libero Touch在市场中非常独特，包含一种新的、非常柔软且有韧性的材料，该种材料能更好的贴合，围绕腰部、臀部和腿运动，防止渗漏且保持婴儿长时间的干燥。

Libero创新中心的全球技术创新经理**Maria Holmberg**说：“在婴儿生命的第一年中，每天几乎24小时与尿裤接触，这意味着舒适性和材料的质量是至关重要的。**Libero Touch**采用的所有材料及特性都是精心挑选的，为婴儿提供完美舒适的护理。”

尿裤核心包括超吸水性材料，它可以捕获和锁住高达自身重量60倍的液体。与婴儿敏感皮肤相接触的尿裤部分是非常柔软的内部衬垫，外部由一种透气的具有棉质感的材料组成。该尿裤能响应和适应孩子的每一个动作，并具有双重阻隔，以尽可能减少泄漏的风险。这让**Libero Touch**为孩子和父母提供令人愉快、舒适和干爽的体验。

柔软性在实验室和消费者测试中都得到了验证。**Holmberg**说：“在盲测中，**Libero Touch**取得了优异的成绩，10对父母中8对认同我们的产品比竞争对手的产品更加柔软。”

Libero Touch的全部品种都经皮肤测试以保证其对于婴儿皮肤是轻柔的。与所有**Libero**尿裤一样，**Touch**系列具有北欧生态标签（天鹅），保证产品符合严格的环境

和气候条件的要求。

新尿裤在所有北欧国家都有售卖，其他市场将紧随其后。

（资料来源：“www.nonwovens-industry.com”）

Halyard Health推出新的外科手术口罩 四种提供ASTM 1级或2级液体防护的口罩

Halyard Health，原金佰利克拉克保健公司，一个专注于预防感染，消除疼痛和加速恢复的全球医疗技术公司，宣布将四种新的符合ASTM标准的**Halyard Fluidshield**液体防护特种外科口罩加入其产品系列。依据医用口罩性能的ASTM F2100-11标准，这四种口罩符合ASTM1级或2级的液体防护要求。

研究表明，手术室医务人员被血液或其他体液飞溅面部的几率平均在45-51%之间，他们处于受感染的潜在风险之中。液体防护很重要，但现在超过70%的口罩没有按ASTM标准进行抗液体评级。**Halyard Fluidshield**液体防护ASTM级口罩具有液体防护和独特的舒适性双重特征，包括用于满足临床医生和手术室医务人员需求的软衬。

新产品包括：

- 39117 Halyard Fluidshield液体防护 ASTM 1级水平绑带式外科口罩
- 39118 Halyard Fluidshield液体防护ASTM 1级水平绑带式外科口罩（附高透明眼睛防护薄片）
- 39123 Halyard Fluidshield液体防护ASTM 2级绑带折叠式外科口罩
- 39124 Halyard Fluidshield液体防护ASTM 2级绑带折叠式外科口罩（附高透明眼睛防护薄片）

Halyard Health手术及预防感染市场总监**Lon Taylor**说：“液体防护ASTM级特种口罩代表一种出于客户需求而进行的外科口罩的创新，它结合了特殊的性能和舒适的特征，再融入符合ASTM的手术室液体防护。我们的客户们信赖金佰利公司，而现在的**Halyard Health**继续提供质量稳定并符合最新标准的可靠产品，我们很自豪能够扩大我们的口罩产品系列，成为能最好地满足这些需求的唯一产品来源。”

（资料来源：“www.nonwovens-industry.com”）



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www.shfcme.com.cn

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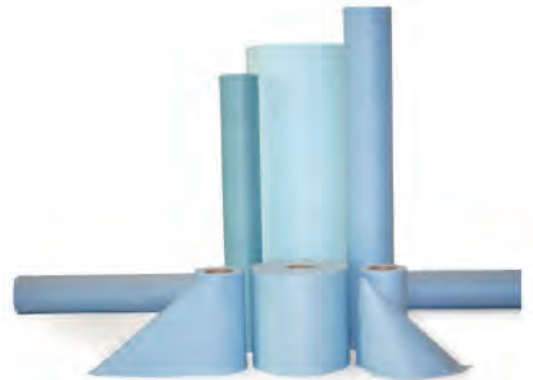
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