Sponsor: ANFA

Dec. 2016 | ISSUE 35

ISSN 2413-9076

Asia's Only Regional Bilingual Magazine for the Nonwovens Industry

NonwovensAsia

亚洲非织造材料工业　ノンウオーブンス·アジア　부직포 아시아

FEILONG 飛龍

2016年新款产品
Newest product

高速梳理机
High-speed carding machine

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

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

120M新型热风无纺布生产线

热风定型机
Hot air setting machine

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

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

常熟市飞龙无纺机械有限公司
Changshu Feilong Nonwoven Machinery Co.,Ltd.
电话：+86 512–52581505　52581467
TEL: +86 512–52581505　52581467

传真：+86 512–52583888　52587111
FAX: +86 512–52583888　52587111
邮箱：info@feilong.cn
EMAIL: info@feilong.cn

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

垂直式混开棉机组
Vertical mixing opener

ASBG003气压自动棉箱
ASBG003 Air auto hopper

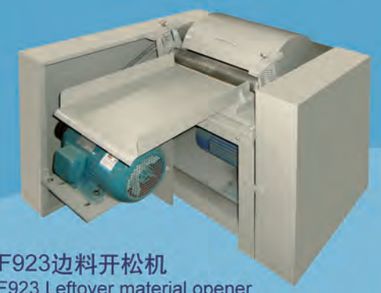
ASBG091梳理机
ASBG091 Carding machine

ASBG215系列梳理机
ASBG215 Carding machine

ASBG401高速铺网机
ASBG401 High-speed cross lapper

ASBG939大仓混棉箱
ASBG939 Large bin hopper

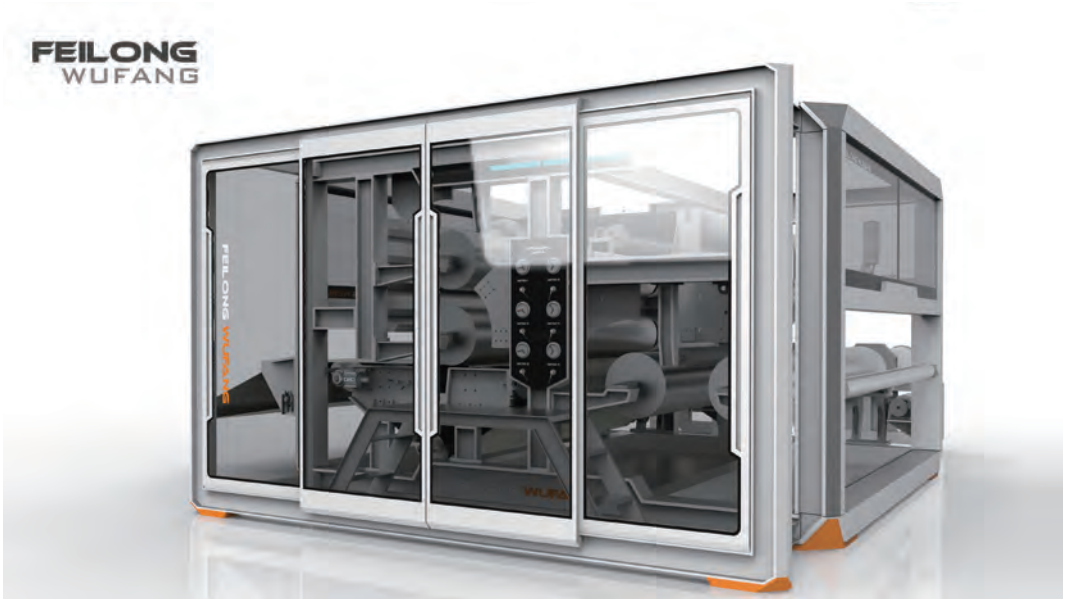
直列式混开棉机组
In-line mixing opener



WF923边料开松机
WF923 Leftover material opener

常州市锦益机械有限公司
CHANGZHOU JINYI MACHINERY CO.,LTD

地址：江苏省武进区雪堰镇潘家工业区潘南路1号
Address: No. 1 Pannan Road, Panjia Industrial area, Xueyan Town,Wujin District, Changzhou, Jiangsu, China
电话(Tel)：0519–86543565　Http: //www.jinyimachinery.com
传真(Fax)：0519–86543082　Emai: info@jinyimachinery.com



高效水刺机组
High-efficient spunlace units

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

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

高速针刺机
High-speed needle loom

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

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

地址：江苏省常熟市支塘镇任阳晋阳西街125号
邮编：215539
ADD.: No.125, Jinyang West Street, Renyang, Zhitang Town, Changshu City, Jiangsu Province, P.R. China 215539

【领航未来】

常熟市振泰无纺机械有限公司是非织造机械专业研发制造企业，依托常熟市振泰不织布有限公司十余年无纺布丰富生产经验、深厚的技术储备，始终矗立于非织造机械行业的最前沿。主要产品有：合成革基布、汽车内饰布、土工布、油毡基布、喷胶棉、硬质棉等成套设备。

振泰公司始终以"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。

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

Based on more than 10 years nonwoven fabric manufacturing experience of changshu zhentai nonwoven co.,ltd and profound technics, we have been in the leading edge of nonwoven machinery field.Our main line includes of synthetic leather substrate machinery, Automotive interior decoration cloth machinery,geotex machinery,asphalt felt substrate machinery, padding machinery,hot-mlet nonwoven machinery.

Our mission is to make every customer trust us and be satisfied with us. We will be dedicated to supplying technically advanced and of outstanding quality nonwoven machinery for worldwide customers.

ZTZC- 针刺无纺布生产线

ZTHG- 硬质棉烘干机

ZhenTai 振泰

常熟市振泰无纺机械有限公司
地址：中国江苏常熟任阳镇
电话：0086 512 52586739
传真：0086 512 52586627
E-mail:zhentaiwufang@163.com

Changshu zhentai Nonwoven Machinery Co.Ltd
Add:Renyang Town, Changshu, Jiangsu, China
Tel :0086 512 52586739
Fax:0086 512 52586627
E-mail:zhentaiwufang@163.com

振泰，打造精品无纺机械

ZTSL- 高速梳理机

ZTPW- 铺网机

ZTGS- 高速针刺机

ZTQR- 起绒针刺机

第十七届
上海国际非织造材料展览会
The 17th Shanghai International Nonwovens Exhibition (SINCE)

拓展全球最大非织造材料市场及商脉

DEVELOPING GLOBAL LARGEST NONWOVENS MARKET!

ASIA'S LARGEST NONWOVENS EXHIBITION!

2017.11.08 - 11.10

上海世博展览馆
Shanghai World Expo Exhibition and Convention Center

上海浦东国展路1099号（南入口）及博成路850号（北入口）
No. 1099 Guozhan Road (South Gate) & No. 850 Bocheng Road (North Gate), Pudong, Shanghai, China

主办单位
SPONSORED BY:

中国技术市场协会
CHINA TECHNOLOGY MARKET ASSOCIATION (CTMA)

承办单位
ORGANIZED BY:

上海希达科技有限公司
CNTA SCIENCE & TECHNOLOGY CO., LTD.

博闻中国
UBM CHINA

上海科技会展有限公司
Shanghai Technology Convention & Exhibition Co., Ltd.

国内 DOMESTIC

上海希达科技有限公司
CNTA SCIENCE & TECHNOLOGY CO., LTD.
ANNIE LIU
T: + 86 21 6464 1527
F: + 86 21 6091 1033
E: info@cnta.org

海外 OVERSEAS

博闻中国（上海）
UBM CHINA
DENNY JIN
T: + 86 21 6157 7205
F: + 86 21 6157 7299
E: denny.jin@ubm.com

PERFORMANCE - Made in Luxembourg
性能的保证 - 卢森堡设计

QUALITY - Made in Germany
质量的保证 - 德国制造

Winder Works
engineering our business

Maschinenbau Winder Works
machinery our business

Winder Works GmbH. | 德国万德卷绕机公司

Whole package from Winding, Slitting to Packing.
提供高速精密完整的卷绕-分切-包装系统

www.WinderWorks.de

Automatic high Speed Turret-Winder with In-Line Slitting Typ AW-N
高速全自动在线分切卷绕分切机 型号AW-N

AW-N is suitable for Spunlace, Spunbond and Thermobonding Line.
AW-N 在线卷绕分切机可适用于水刺, 纺粘, 热粘合等无纺布产品的在线分切, 卷绕.
Max Width/最大宽度: 4000 mm,
Max Production Speed/最大生产速度: 400 m/min
Min. Slitting Width/最小分切宽度: 50mm
Adjustable constant tension control/可调节的恒定张力控制
Double drive: Axis and surfrace drive/中心驱动和表面驱动的双驱动系统
Hydraulic Free/ 整套设备无液压装置

Main Product/ 其他卷绕分切设备
Automatic Winder /自动卷绕机 最大速度 800m/min
Automatic Slitter Rewinder / 自动分切复卷机 最大速度 1600 m/min
Reel Handling System and Packaging Solutions/成卷处理系统和包装解决方案

"Our machines are produced with passion by people for people."

全自动无纺布卷绕机

Our Cooperations Partners

GRAUTE NONWOVEN MACHINERY
Graute GmbH · Im Südfeld 64 - 66 · D - 48308 Senden
Tel.: +49 (0) 2536 4520-100 · Fax: +49 (0) 2536 4520-191
www.grautegmbh.de · info@grautegmbh.de

Maschinenbau Winder Works machinery our business
Winder Works Maschinenbau GmbH · Im Südfeld 64 - 66 · D - 48308 Senden
Tel.: +49 (0) 2536 4520-300 · FAX: +49 (0) 2536 4520-391
www.winderworks.de · info@winderworks.de

Winder Works engineering our business
Winder Works GmbH · 9, Groussupp · L-8248 Consdorf
Tel.: +352 787500 · Fax: +352 787500-91
www.winderworks.de · info@winderworks.de

中国区代理: 上海优恪机械科技有限公司 上海市四川北路2115号, 方舟大厦9楼C座.
电话:+86-21-56615822 传真:+86-21-56611378 电子邮箱: unico <unico@online.sh.cn>

瑞士格拉夫针布

市场的领导者

多年與世界各国知名无纺布梳理机配套针布经验。优质的金属和弹性针布，专业的针布型号配置，优良的包磨辅机和经验的技术人员，诚然是大家的最佳合作伙伴。

瑞士格拉夫远东有限公司
香港中环士丹利街60号明珠行20楼
电话：（852）28100955
传真：（852）28452964

电邮：info@grafhk.com

www.grafhk.com

汕头三辉无纺机械厂有限公司

SHANTOUU SANFAI NONWOVEN MACHINERY FACTORY, LTD

汕头三辉无纺机械厂有限公司成立于2001年。我们一贯坚持以客户的生产工艺为主导，主要采用进口部件，精工制作，专业设计生产具有国内领先技术水平的各种高产高速针刺机、铺网机、梳理机、开清机等高端非织造机械。我们研制的高速针刺机具有不泄油、不晃动、振动微、噪音低等特点，产品获得国家多项技术专利，其中宽幅高频起绒针刺机和立体提花针刺机已接近进口同类产品的技术水平，填补了国内该类产品的空白。公司生产的非织造机械广泛引用于高档皮革基布、超纤皮革基布、土工布、鞋材、高档过滤材料、汽车内饰材料等的生产，已进入国内的高端市场，并已出口到比利时、台湾、泰国、印尼等国家和地区。

喂入机

开包机+粗开松机

气流成网机

高速1000～1500次/分钟
不漏油
振动微
噪音低
针板互换

牵伸机

混棉机+精开松机

给棉机+梳理机

铺网机

立体提花机

地址：中国广东省汕头市龙湖万吉工业区海河路18号
电话：86-754-88342168，88394258
传真：86-754-88342128　邮编：515065
http://www.sanfai.com　Email:sf@sanfai.com

连云港柏德实业有限公司
LYG Boulder Industrial Co.,Ltd

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

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

连云港柏德实业有限公司
LYG Boulder Industrial Co.,Ltd

地址: 中国江苏连云港东海经济开发区晶都大道1069号
Address: NO. 1069 Jingdu Road, Donghai Economic Development Zone, Lianyungang, Jiangsu, China
Tel: 0518-87162577-6801 Fax: 0518-87798953
Email: market@lygboulder.com.cn

专业生产非织造布

发展高新技术产品，确立行业主导地位，实现规模经济

主营产品：

- □ 涤纶短纤维系列
- □ 短纤聚酯胎无纺布系列
- □ 针刺土工无纺布系列
- □ 长丝聚酯胎无纺布系列
- □ 各类针刺、热轧无纺布系列
- □ 过滤材料无纺布、热轧压光无纺布、PET纺粘无纺布系列

“中国生产各种无纺布大型企业之一”

力创优质品牌 铸造一流企业

江阴市江海非织造布有限公司
JIANGHAI NON-WOVEN FABRIC CO., LTD.

地址：江苏省江阴市徐霞客镇环西路工业园江海路2号
电话：0510-86531731；86530859；13606168965
传真：0510-86531980；邮编：214407
E-mail：jyfangshui@163.com；13606168965@163.com
Http://www.jianghai-group.com；www.shimaoqing.cn.alibaba.com

伟 成 机 械
WEICHENG

高速系列产品
High Speed Series Products

德国技术高速梳理机，速度≤150m/min
HIGH SPEED CARDING

德国技术高速铺网机，速度≤150m/min
HIGH SPEED CROSS LAPPER

高速针刺机
HIGH SPEED NEEDLE LOOM

起绒针刺机
VELOUR MACHINE

常熟市伟成非织造成套设备有限公司

地址：江苏省常熟市支塘镇任阳经济开发区

电话：0512-52581266

网址: www.chinaweicheng.cn

博尼诺-伟成机械

BONINO-WEICHENG

废纤维处理系统

Waster Fiber Processing System

高效/Efficient

便捷/Convenient

环保/Environmental protection

CHANGSHU WEICHENG NONWOVEN EQUIPMENT CO.,LTD.

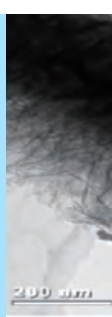
ADD: Renyang Economic Development Zone, Zhitang Town, Changshu, Jiangsu

TEL: 0512-52581266

WEB: www.chinaweicheng.cn

CONTENTS



目录

Nonwovens Asia Magazine-Asia's Only Regional Bilingual Magazine for the Nonwovens Industry
《亚洲非织造材料工业》杂志—亚洲唯一的非织造材料双语杂志

Sponsor 主办：
Asia Nonwoven Fabrics Association 亚洲非织造材料协会
Publisher 出版人：
Wolfram Diener 狄沃夫
UBM Asia Ltd 亚洲博闻有限公司

Co-Sponsoring 协办：
Hong Kong Nonwovens Association 香港无纺布协会
All Nippon Nonwovens Association 日本不织布协会
Korea Nonwoven Industry Cooperative(KNIC) 韩国非织造材料同业公会
Taiwan Nonwoven Fabrics Industry Association(TNFIA) 台湾区不织布工业同业公会
Yangtze River Delta Nonwovens Industry Association
上海长三角非织造材料工业协会

Support 支持：
"Japan Nonwovens Report"Japan 日本《不织布情报》杂志
"Nonwovens Review"Japan 日本《不织布市场与技术》杂志

Editorial Advisory Board Director
编辑顾问委员会主任
Wang Yanxi 王延熹

Editor In Chief 总编
Xiang Yang 向阳

Editorial Advisory Board
编辑顾问委员会
Tai Rong Ji 戴荣吉
Hiroaki Kanai 金井宏彰
Kim Hyun Joo 金显柱
C. S. Huang 黄清山
Pyung Kil Ku 具平吉
Yasuo Takenaka 竹中康雄
Norman C.C. Chiu 邱正中
Hideo Tsuchiya 土谷英夫
Chen Xu Wei 陈旭伟
Liu Hong Guo 刘红国

Marketing/Circulation Manager
市场行销及广销部经理
Paul Wan 尹浩斌

Editor 编委会
Yaida Osamu 矢井田 修(日本)
Kim Jung Kun(韩国)
Noriyuki Takatani 高谷规行(日本)
Zhao Yao Ming 赵耀明
Nature Yang 杨自然(香港)
ChihPing Huang 黄稚评(台湾)
Huang Sheng Fu 黄声福(马来西亚)
Chen Zhe 陈喆
Chen Hong Kuen 陈弘坤(台湾)
Jin Xiang Yu 靳向煜
Qian Xiao Ming 钱晓明
Fang Yipeng 方一鹏
Zhang Yu 张瑜
C. Y. Wang 黄祖荫(澳大利亚)
Xue Hanlin 薛晗林(澳大利亚)
Allen Tsui 徐孝平(香港)
Ma Jinghua 马敬华

Advertising Enquiries

America 美国
Alvina Kwok
Tel: +1 415 947 6608
Fax: +1 415 947 6020
Email: alvina.kwok@ubm.com

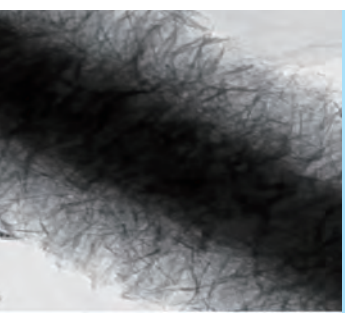
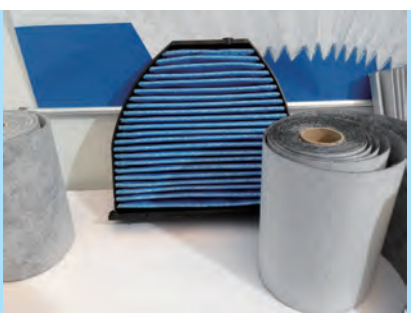
China 中国
Zhang Bo 张波
Tel: +86 21 64641527
Fax: +86 21 64812993
Email: zhangbo@cnta.org

Asia Pacific & Europe 亚太区及欧洲
Paul Wan 尹浩斌
Tel: +65 6592 0888
Fax: +65 6438 6090
Email: Paul.Wan@ubm.com

korea 韩国
Enoch Jeong
Tel: +82 2 2209 5885
Fax: +82 2 432 5885
Email: Enoch.jeong@ubm.com

Japan 日本
Yohei Fujioka
Tel: +81 3 5296 1020
Fax: +81 3 5296 1018
Email: yohei.fujioka@ubm.com

Nonwovens Asia is published by UBM Asia Ltd., 17/F China Resources Building, 26 Harbour Road, Wanchai, Hong Kong
Tel: +852 2827 6211 Fax: +852 3749 7342 Email: Wolfram.Diener@ubm.com

南海·九江
JIUJIANG NANHAI CHINA

中国医卫用非织造产品示范基地
CHINA MEDICAL & HYGIENIC NONWOVEN FABRIC PRODUCT DEMONSTRATION BASE

NH-MHPA
南海区医卫用产品行业协会

中国医卫用非织造产品示范基地

CHINA MEDICAL & HYGIENIC NONWOVEN FABRIC PRODUCT DEMONSTRATION BASE

中国最大、全球具影响力的医卫用非织造产品及生活用纸品集聚基地
China's biggest and globally influential clustering area of medical&hygienic nonwoven fabric and household paper products

- 中游龙头企业引领，全产业链集聚成形
  Led by industrial midstream leader, the whole industrial chain is taking shape.
- 世界级高端制造业门户的中心腹地，兼具国际中心城市与制造业基地双重优势
  Heartland of world-class advanced manufacturing base, boasting dual advantages of international key cities and manufacturing base.
- 涵盖企业总部、技术研发中心、检测中心等板块，集办公、仓储、物流、物联网信息中心等为一体的配套物流园区
  Covering function areas including headquarters, R&D center and testing center and supported by logistics area integrating office, warehouse, logistics and information center, etc.
- 囊括全产业链企业，以抱团联盟理念提供一流服务，助力产业升级、引领行业协同创新、促进企业长足发展的南海区医卫用产品行业协会
  Nanhai Medical and Hygiene Products Industry Association, gathering enterprises covering whole industrial chain to form alliance, provides first-class service to support industrial upgrading, pushes synergic innovation and promotes sustainable development.

佛山市南海区九江镇招商统筹局
Jiujiang Investment Promotion Office, Nanhai District Foshan Municipality

地址：广东省佛山市南海区九江镇九江大道九江公资大楼
Add: Jiujiang Gongzi Building, Jiujiang Street, Jiujiang Town, Nanhai District, Foshan Municipality, Guangdong Province
邮编(P.C.)：528203
联系人(Contact)：崔泽文（Zewen Cui）
电话(Tel)：+86(757)86589818，86505566（Fax）
邮箱(E-mail)：jjz_zsj@163.com
网址（Web）：http://www.nhjjw.cn

佛山市南海区医卫用产品行业协会
Nanhai Medical and Hygiene Products Industry Association

地址：广东省佛山市南海区九江镇启航大道中国医卫用非织造产品示范基地
Add: China Medical & Hygienic Nonwoven Fabric Product Demonstration Base, Qihang Road, Jiujiang Town, Nanhai District, Foshan Municipality, Guangdong Province
邮编(P.C.)：528203
联系人(Contact)：黎露芸（Luyun Li）
电话(Tel)：+86(757)86918700，+86(0)13928692022
传真(Fax)：0757-86910577
邮箱(E-mail)：nhmhpa2014@163.com

Business News

The 6th Filtration & Separation Asia The 9th China Internation Filtration & Separation Exhibition

7-9, December 2016|Shanghai New International Expo Centre (SNIEC)

The 6th Filtration & Separation Asia and the 9th China Internation Filtration & Separation Exhibition organized by China Technology Market Association (CTMA), China Filtration & Separation (CFS), China Nonwoven Technology Association (CNTA) and UBM China, sponsored by Asia Nonwoven Fabrics Association (ANFA), American Filtration & Separation Society (AFS), European Disposables and Nonwovens Association (EDANA) and Taiwan Filtration & Separation Society,were held at Shanghai New International Expo Centre (SNIEC) from December 7th to 9th, 2016. The exhibition attracted more than 160 industry leaders from China, Japan, Korea, the United States, Singapore, India, Malaysia, Italy and other countries and regions, which brought the latest technologies and products covering all fields of filtration and separation technology, including filtration media, filtration equipments and systems, separation equipments, test instruments etc., on display area of 10,000 square meters. Both the exhibition area and the number of exhibitors were the highest ever.

The three days exhibition attracted numerous professional visitors from China, Germany, UK, USA, Australia, Japan, Korea, Malaysia, Singapore, India, Hong Kong and Taiwan. This demonstrated the industry's high attention to exhibitions and vast enthusiasm for participation. Due to the highly professional of visitors, high-tech level and quality products of manufacturers, both them expressed their high degree of recognition of this exhibition after further and extensive exchanges.

During the exhibition, some activities such as "China International Filtration and Separation Forum", "China Filtration and Separation Training Course" and "Filtration and Separation Technology Speech" were also received favorable receptions by the participants.

The delegation from All Nippon Nonwovens Association visited Nbond Nonwovens Co., Ltd for exchanges

In the morning of October 20, the secretary general Mr. Toshiaki Hokudoh and adviser Mr. Hideo Tsuchiya from All Nippon Nonwovens Association and Mr. Xiangyang, the president of China Nonwoven Technology Association, such a group of a total of 24 people visited Nbond Nonwovens Co., Ltd. This was another visit for Japan Nonwoven Association to Nbond after the 2007's visit. This group was accorded a cordial reception and accompanied for by Managing Director Mr. Zhangjie.

This visit mainly included watching video in the hall, visiting "Highest excellence as water" - the global theme pavilions of nonwoven materials development, production line 8, north campus, central laboratory and the two sides had a further communication in the conference room after the tour.

After watching the video about the promotion of Hangzhou city and Nbond, visitors accompanied by the Managing Director Mr. Zhang visited the "Highest excellence as water" - the global theme pavilions of nonwoven materials development. The pavilion is the display base to show the nonwoven industry culture and the development of enterprise image, which was strived to build by Nbond. The pavilion has four areas which are named springs, streams, lakes and sea and contains seven parts which are sequence hall, the historical development of enterprises, corporate culture, industry products display, enterprise qualification honor, sales network, industry historical development and product display. The theme pavilions take the "water culture" as the main line and core with a pregnant meaning. First of all, it expresses the evolution development process from small to big of spunlace nonwoven technology and all things in nature. Second, the historical development of nonwoven materials industry has a long

Business News

history, and extend to all areas, Nbond hopes industry will have an infinite and wide development prospect in the future. Finally, the Nbond will be adhering to the enterprise mission which is "let every fiber from nature return to the world with cleaner water and bluer sky", to keep trying to make a great sense of responsibility of environmental protection enterprises.

The delegation showed great interest in the content presented by the theme pavilion, Mr. Zhang and the commentators carefully explained for their constantly consulting, especially, in product display and historical development of nonwoven materials industry these two areas.

Nbond open to the visitors the "Flushable SANLYZO" which is the high-end care and environmental protection material production line, line 8. They also visited the production and quality management in line 8 with a close distance. Then, the delegation visited the Nbond's central laboratory with more than 30 sets of experimental instruments. The laboratory's development goal and objective is "using the most sophisticated instruments and equipment, to provide international and domestic customers with rigorous and efficient work and service quality which is objective, accurate and efficient test evaluation service".

On bilateral exchange meeting, Mr. Zhang represented Nbond extended the warm welcome again for Japan Association of Nonwoven delegation's visit and introduced the history of Nbond and the owner group's development, scale, product applications one by one. The delegation discussed and asked about the characteristics of every production line, the product application field, production lines, product quality management method and standard as well as the types of raw material, etc., Mr. Zhang made detailed answers to these questions.

At the end of the meeting, the association secretary general Mr. Toshiaki Hokudoh and adviser Mr. Hideo Tsuchiya also made speeches respectively, expressing heartfelt thanks for the warm reception and chances for the visit, also, wondered at Nbond's development and changes in recent years. Mr. Zhang also declared the future development direction and vision of Nbond, at the same time, hoped to strengthen the cooperation with Japanese counterparts furtherly.

The delegation from All Nippon Nonwovens Association visited Shanghai Kingfo Industrial Co., Ltd for exchanges

In the afternoon of October 20, the secretary general Mr. Toshiaki Hokudoh and adviser Mr. Hideo Tsuchiya from All Nippon Nonwovens Association and Mr. Xiangyang, the president of China Nonwoven Technology Association, such a group of a total of 24 people visited Shanghai Kingfo Industrica Co., Ltd. This group was accorded a cordial reception and accompanied for by Deputy General Manager Mr. Shen Genzhu.

ANDRITZ to supply two spunlace lines to Fujian NanFang

ANDRITZ to supply two spunlace lines to Fujian NanFang Textile Co., Ltd, including the first TT cards sold in China

Graz, September X, 2016. ANDRITZ Nonwoven, part of international technology Group ANDRITZ, has received two orders from Fujian NanFang Textile Co., Ltd (PRC) to supply new spunlace lines.

In the past, NanFang already invested in three spunlace lines in 2002, integrating ANDRITZ web forming, and then in 2005 and 2006.

NanFang will once more rely on ANDRITZ technology with two neXline spunlace nonwovens lines, which will be installed in a new plant located in the City of NanPing (Fujian province).

The first line will be capable of processing 100% bleached cotton fibers in a crosslapping configuration with an eXcelle card, a Dynamic crosslapper, a drafter and an eXcelle card, including the ProDyn and Isolayer functions, in order to enhance the web profile uniformity and therefore save raw materials. Regarding the web bonding, ANDRITZ will supply its Jetlace Avantage hydroentanglement unit. The final applications are face masks and wipes.

▲ANDRITZ neXline spunlace line with TT cards

The second line is a high-speed spunlace line configuration processing viscose and polyester fibers. It will have two TT cards for web forming and a Jetlace Essentiel for hydroentanglement. The TT cards have become the new standard in the USA and Europe for high speed lines, with more than thirty machines in operation for five years and an average capacity of 20,000 T/a per line. At NanFang they will be the first TT cards installed in China. The end use is wipes and baby wipes. Both lines will be delivered first quarter 2017.

The two new nonwovens lines will be equipped with the latest innovations from ANDRITZ Nonwoven and will allow NanFang to produce high-quality nonwoven fabrics for the world market.

Mitsui Chemicals to expand Sunrex nonwoven facility

Courtesy: Mitsui chemical

Japan's Mitsui Chemicals, Inc., is set to expand its production facilities at Sunrex Industry Co., Ltd., a wholly-owned subsidiary in Yokkaichi, Mie Prefecture, to respond to demands of the growing premium disposable diaper market. The facility is expected to use proprietary technology to produce premium high-performance nonwovens with superior elasticity and expandability.

In their mid-term business plan, the company is set to focus on healthcare business as a targeted business domain that drives growth, in addition to mobility and the food & packaging domains. The nonwoven business, which is part of the healthcare business sector, aims to further expand by supplying premium diaper manufacturers in the growing markets of Japan and the rest of Asia.

ISuper soft and expandable high performance nonwovens will be manufactured at the new facility. Conventional spunbond manufacturing methods improved by Mitsui Chemicals' proprietary state-of-the-art technology will be used for excellent flexibility and expandability accompanied by superior comfort. The expansion will help distribution of high performance nonwovens to the premium disposable diaper market and enhance quality and expand applications.

The expansion of Sunrex facilities, when completed in November 2017, is expected to bring Mitsui Chemicals global production capacity to 115,000 tons per year. (GK)
(Source from: "www.technicaltextile.net")

Toray to add spunbond line in Korea

18,000 tons of new capacity will meet demand for hygiene applications in Asia

Toray Industries will install a 18,000-ton spunbond polypropylene line in Korea. This high performance line will be housed in a new factory at the company's Gumi site and will begin operation in Aril 2018.

Based in Korea, Toray has not added a polypropylene spunbond line in Korea in a number years and reports its output in the country at 43,000 tons. Meanwhile the company has instead focused on expanding its output elsewhere in Asia, notably in China, where it is currently building a fourth line, and Indonesia, where it operates two spunbond lines.

Toray is investing in Asia under the Medium-Term Management Program, Project AP-G2016 launched in fiscal year 2014, where it has vigorously implementing the four group-wide projects aimed at expanding business in growing fields as well as countries and regions and enhancing competitiveness. The decision to increase its polypropylene spunbond production capacity is promoted as a part of the Asia, America and Emerging Country Business Expansion (AE-II) Project to capitalize on the growth of Asia, Americas and emerging countries in other regions, where significant economic expansion is expected, as well as of Life Innovation Business Expansion (LI) Project, which calls for improving the quality of health care, easing the burden at medical institutions and contributing to health and longevity. The Toray Group will actively promote business expansion in growth fields as well as in various countries and regions with all its strength and aim for continued growth.

Demand for disposable diapers for babies and toddlers has been rapidly increasing in ASEAN member countries, India and China, as the lifestyle of people in these countries improves against the backdrop of high economic

Business News

growth and rising national income. Especially in China, which is the largest market, import of high-end products made in Japan and Korea has been sharply expanding as the people increasingly opt for safe products nd major sanitary products manufactures with global presence have been declaring plans in succession to expand plants producing products for the Asian countries. Given this situation, demand for polypropylene spunbond, which is the main raw material of disposable diapers, is expected to grow at an annual rate of about 9% from 500,000 tons per year in 2015 reflecting expanding demand for diapers for senior citizens in developed countries in addition to that for babies and toddlers in emerging nations, and the material's supply is forecast to fall short, according to Toray.
(Source from: "www.nonwovens-industry.com")

Yanfeng establishes SC operation

Automotives parts supplier invests $71 million in the region

Yanfeng Automotive Interiors, the world's largest supplier of automotive interior components, is establishing operations in Laurens County, SC. The new development is expected to bring $71 million of new capital investment and lead to the creation of 35 new jobs in the areas.

The Shanghai, china-based company will supply BMW with interior components, including door panels, instrument panels and floor consoles for multiple models built by the automaker.

Yanfeng Automotive Interiors is a supplier of instrument panels and cockpit systems, door panels, floor consoles and overhead consoles with more than 100 manufacturing and technical centers in 17 countries and 28,000 employees globally. Established in 2015, Yanfeng Automotive Interiors is a joint venture between Yanfeng Automotive Trim Systems Co., Ltd., a wholly owned subsidiary of Huayu Automotive Systems Co., Ltd. (HASCO), the component group of SAIC Motor Corporation Limited (SAIC Motor), and Johnson Controls, a global multi-industrial company.

The company recently completed the acquisition of Faurecia's Fountain Inn, SC manufacturing plant including the existing 365,000-square-foot plant and its current employees.

Yanfeng Automotive Interiors will expand the plant by an additional 100,000 square feet to accommodate future new business
(Source from: "www.nonwovens-industry.com")

Ahlstrom to invest in Kentucky site

$25 million investment will enhance its filtration portfolio

Ahlstrom, a global leader in filtration materials, will invest in its engine and industrial filtration product capabilities at its Madisonville, KY, plant. The total investment is approximately €23 million ($25.2 million) and it will be completed during the first half of 2018.

Fulvio Capussotti, executive vice president of Business Area Filtration & Performance, says, "Ahlstrom is a leading global manufacturer of engine and industrial filtration materials with production sites across four continents. As a commitment to our key filtration customers we are widening our filtration products portfolio with the state of the art equipment. This is an important step in strengthening our focus on both North and South America."
(Source from: "www.nonwovens-industry.com")

Nanofiber-based sanitary napkins developed in India

Pads created by a team at the Indian Institute of Technology, Hyderabad, don't incorporate SAP

According to a report in The New Indian Express, the Indian Institute of Technology, Hyderabad (IITH) has developed a nanofiber-based sanitary napkin.

Prof. Chandrasekhar Sharma, faculty of chemical engineering department at the IITH, and his team of students developed the sanitary napkins without using super absorbent polymers (SAP), to ensure that women do not face any side-effects when using these nanofiber-based sanitary napkins.

"Menstrual hygiene is an important issue for every woman, as poor menstrual hygiene increases the vulnerability towards reproductive tract infections," says Prof. Sharma. "Sanitary napkins are the most

Business News

commonly used disposable absorbent hygiene products by women. However, there are some harmful chemicals present in the commercially available sanitary napkins at present, like super absorbent polymers, that are petroleum-based products. As these products can cause health problems to women, we have decided to come up with a safe alternative."

Electrospun cellulose acetate (CA) nanofibres were used by the team as a material for absorbent core in these sanitary napkins. These pads eliminate the use of non-biodegradable super absorbent polymers which are used in commercially available sanitary napkins at present, without compromising the performance, with more enhanced absorbency and comfort, the report says.

"Nanofiber-based feminine hygiene products provide a safe alternative to female hygiene as prolonged use of commercially available products may lead to toxic shock syndrome and ovarian cancer," Prof. Sharma says. "The main focus of this work is to minimize the use of SAPs in products. For this, we intend to fabricate cellulose-based nanofibres and suggest their use as absorbent core."
(Source from: "www.nonwovens-industry.com")

Techmer expands in Mexico

Investment to meet needs of Latin American customers

Techmer PM will open a production facility in Mexico to provide local service to the growing number of its customers with operations in Mexico and Latin America.

The facility is expected to be operational in the second half of 2017 and will have sufficient capacity to service Mexico and key Latin American markets. It will also enable Techmer to support the expansion of automotive companies with operations in Mexico as well as other strategic growth areas.

"Techmer PM has built a strong presence in Mexico over the years as an exporter, and we are excited about the opportunity to further existing customer relationships as well as cultivate new business opportunities locally," says Ryan Howley, president of Techmer PM.

The Mexico expansion project will be headed by Guillermo Quijano who was recently hired as general manager for Latin American operations. Quijano has more than 20 years of materials design experience in Latin America and will be responsible for establishing the Mexican site and overseeing operations in Mexico and Latin America. His experience includes the successful opening of a greenfield compounding plant in Mexico as well as leading a team as general manager.

"Guillermo's professional background sets us up well to grow new business and create a best-in-class operation in Mexico," says Howley.

More details about the location, equipment, and new hires will be announced later in the planning process.
(Source from: "www.nonwovens-industry.com")

Oji to compete in Myanmar diaper market

Nenia brand to be sold at 34 locations.

Oji Holdings has reportedly entered Myanmar's disposable diaper market, joining competitors such as fellow Japanese company Unicharm and U.S.-based Kimberly-Clark. Oji is importing its diapers from Japan and Malaysia into where Myanmar where its Nenia brand is being sold at 34 locations of City Mart Holding, the country's largest retailer. The Tokyo-based company plans to boost revenue by expanding its sales network to include other leading local retailers.

By using high quality to appeal to a burgeoning urban middle class, Oji aims to capture more than 10% of Myanmar's disposable diaper market within two years.

Since establishing a presence in Myanmar in 2013, Oji has sold packaging materials in the Southeast Asian nation. It has also set up local production, having placed into service a cardboard plant there in August 2015 and a lumber mill - a joint venture with a local company and Sumitomo Forestry - in April in the eastern state of Mon.
(Source from: "www.nonwovens-industry.com")

Business News

Awa Paper offers recycled mat

Product of same quality as those made with virgin carbon

Japanese nonwovens maker Awa Paper has begun supplying a nonwoven mat made from recycled carbon fiber and synthetic fibers. The company is reporting that this product, which is made through a combination of the papermaking and thermal bonding processes is of the same quality of similar products made using virgin carbon fibers.
(Source from: "www.nonwovens-industry.com")

H.B. Fuller breaks ground on Indonesian site

New site will make adhesives for hygiene industry

H.B. Fuller has broken ground on its future manufacturing facility in Surabaya, Indonesia. This future facility will strengthen H.B. Fuller's network in the Asia-Pacific region and will complement the products and technical service offered today by the company's manufacturing facilities in China, the Philippines, Malaysia and Australia.

"This future manufacturing facility is an excellent example of how we will leverage our global reach and technical knowledge to empower local experts," says Jim Owens, H.B. Fuller president and CEO. "Today, we mark an important milestone in our commitment to deliver value to our customers in Asia, enhance our competitive position, and continue making investments in the capabilities necessary to support our long-term growth strategy."

The company anticipates production of hot melt and water-based adhesives products to begin in the second quarter of 2016. This increased capacity in the region would enable the company to consistently meet local customers' requirements and grow significantly in Southeast Asia, particularly Indonesia.

From this new site, H.B. Fuller will provide adhesive solutions to customers in the hygiene, packaging, woodworking, filter, product assembly, container labeling and other durable assembly industries.
(Source from: "www.nonwovens-industry.com")

<<< Continue 12

increase in demand in the market for high quality polyolefin fibers. It will be housed in a new building offering space for further expansion, which will be constructed at the Terni site. B.F.I. expects to begin installation of the equipment from mid-2017.

The new hygiene line will enable B.F.I to add bico PE/PET (polyethylene/polyethylene terephthalate) and bico PP/PET fibers to its Meraklon product portfolio for the first time. This important step will support B.F.I's worldwide hygiene and personal care sector customers interested in using these fibers for nonwoven applications such as baby diapers, adult incontinence products, feminine care and wipes.

Nonwovens made with the bico fiber combinations have a higher loft/bulk and a good resilience. The higher melting temperature of the PET in the core of the fiber allows a broad bonding window during the production process. In particular, PE/PET fibers address the requirements of softness in the market in combination with a higher bulkiness through the PET.

B.F.I will also produce mono PP fibres on the new line, extending its current production capabilities for these fibers at Terni. BFI produces a broad portfolio of fibers for hygiene customers at the site including Trilobal and PE/PP bico fibers.

Karena Cancilleri, vice president Engineered Products, Beaulieu Fibres International, comments: "The additional production capacity is a key step in making the Meraklon Terni plant a true center of excellence for hygiene. It reinforces our on-going commitment to increase support for customers in this sector following the extension of our production portfolio with mono trilobal fibers and PE/PP bico fibers in 2015. Having an additional production line at Terni will give us the capability to be more flexible in our support and to offer an even wider product range through new bico products."
(Source from: "www.nonwovens-industry.com")

Market News

Owen Corning opens glass nonwovens plant in North Carolina

Investment will support growth in North American construction market

Owens Corning has dedicated a new advanced manufacturing facility in Gastonia, NC, which will support the company's participation in the growth of the growing nonwovens glass fiber market, particularly the North American construction segment.

"Our investment in Gastonia encompasses the most advanced glass veil manufacturing technologies - with the ability to make a broad range of products for diverse customers - a sustainable footprint and a highly trained workforce," says Suman Raha, general manager of Non-Wovens - North America, Owens Corning. "We have a legacy of transforming markets by introducing glass fiber products. The Gastonia plant will continue that tradition with our glass veils for building materials.

"Formally introducing the Gastonia plant and business center shows our commitment to our customers' growth and success. We thank our government and community partners again for their support over the last three years in creating a truly world-class operation," he adds.

With advanced automation and networking technology, the Gastonia plant produces a thin sheet of glass-reinforced material - called veil - that is used in construction applications such as carpet and ceiling tiles, vinyl flooring and gypsum wall board, as well as automotive applications. The Gastonia facility is capable of producing Sustaina veil products with a formaldehyde-free binder that, in turn, addresses customers' growing interest in biobased products.

Owens Corning glass fiber materials are found in more than 40,000 end-use applications in the construction, wind energy, water infrastructure, industrial, transportation, consumer goods and aerospace / defense sectors.
(Source from: "www.nonwovens-industry.com")

K-C upgrades diapers and wipes lines in Singapore, Report says

New lines feature automated technology

New manufacturing lines for Huggies baby wipes and diaper pants were launched at Kimberly - Clark's Tuas plant in Singapore, according to a report issues by Channel News Asia.

The multi-million dollar investment brings Kimberly - Clark's total investment in Singapore to nearly $300 million. The company first set up its Singapore office in 1980's, and established its ASEAN office and Asia-Pacific headquarters there in 2012.

The new manufacturing lines reportedly feature advanced and automated technologies for the production of Huggies brand baby wipes and diaper pants, which will be exported to 11 other countries including China and Australia in the region. The Asia-Pacific is Kimberly-Clark's biggest international region by revenue.

Speaking at the launch of the new manufacturing lines, Trade and Industry (Industry) Minister S. Iswaran says manufacturing continues to be an important pillar of Singapore's economy and advanced manufacturing has been identified as a key growth sector with opportunities for Singapore.

"We will also continue to work with the industry to train and prepare our workforce to take up new opportunities that will come about because of the changes in manufacturing techniques and the use of higher technologies," he adds.

Kimberly-Clark will be training its employees to operate the new lines. This includes in areas such as operations and maintenance of the lines, systems design, packaging architecture, and quality control and monitoring.

The company employs around 250 people in Singapore, of which around 70% are local. Close to 150 people are currently working at the Tuas Plant.
(Source from: "www.nonwovens-industry.com")

Wet Ones launches back-to-school contest

Hand wipes brand encourages parents to snap pictures of their kids' messy moments

Market News

According to a study conducted by Wet Ones Hand Wipes, 91% of moms say they have stopped their child from participating in an activity because it was too messy. To help parents embrace the mess this back-to-school season, the brand has partnered with Siri Daly to bring the fun back into the kitchen because Wet Ones hand wipes are there to help clean up hands before and after the mess!

"As a mother and food blogger, I love cooking with my children, but sometimes I feel like I miss out on great moments with them because I'm so concerned with cleaning as I go," says Siri Daly. "Even getting my kids to wash their hands after making a mess is a struggle! Wet Ones Antibacterial Hand Wipes are a convenient 2-in-1 way to wipe away dirt and messes when soap and water aren't readily available."

"We know that while the majority of moms, like Siri, try to avoid messy moments, 84% of moms also admit that making a mess while cooking is one of the most fun activities they can do with their kids," says Christina Saikus, Wet Ones brand manager, Edgewell Personal Care. "We want to encourage parents to embrace family memories by letting their little ones help make messy PB&Js for their lunchbox and sloppy joes for family dinners - because with Wet Ones hand wipes you're always covered!"

To celebrate messy moments this back-to-school season, Wet Ones Hand Wipes is launching a contest to search for the messiest kids in America. To participate, parents must take a picture of their child age 2 to 17 years old at their messiest and post it to Twitter or Instagram using the hashtag #WishIHadaWetOnes & #contest. Pictures can also be uploaded at www.wishihadawetones.com. One Grand Prize winner will receive $5,000 plus a year's supply of Wet Ones products. Five First Prize winners each receive a $2,500 Visa Prepaid Card. See below for Contest details.

Wet Ones Antibacterial Hand Wipes are the convenient 2-in-1 way to wipe out dirt and messes and kill 99.99% of germs when soap and water aren't readily available. Wet Ones Hand Wipes are formulated to be tough on dirt and germs, but gentle on skin. They are hypoallergenic and contain aloe and lanolin, making them easy on skin for even the littlest of hands. Now available with new Wet Lock seal technology in the brand's 20-count travel packs, proven to help the wipes retain 15% more moisture, ensuring they remain fresh on-the-go so you're never left without a convenient way to wipe out dirt and messes.
(Source from: "www.nonwovens-industry.com")

Toyobo agrees tie-up with Dutch bioventure company to produce 100% biobased resin that outstrips PET barrier performance

Toyobo and Dutch bioventure company Avantium have agreed a deal under which Toyobo will manufacture polyethylene furanoate (PEF), a 100 percent biobased resin that has qualities similar to polyethylene terephthalate (PET), but which exhibits higher barrier performance than that of PET.

The oxygen barrier efficiency of films and bottles made from PEF is 10 times higher than PET equivalents, while water vapor barrier efficiency is twice as high, potentially opening new horizons for the material's use. Toyobo also plans to manufacture thin films made from PEF.

State-of-the-art technology

PEF is made by polymerizing furandicarboxylic acid (FDCA) - produced from biobased carbohydrates (sugars) using Avantium's technology - and ethylene glycol, which also is biobased. Conventional PET is made by polymerizing terephthalic acid (PTA) and ethylene glycol.

Most PET products currently on the market are made from petroleum-based PTA and are therefore not 100 percent biobased. As research into making PTA purely biobased has progressed, Avantium has succeeded in developing the technology to efficiently produce FDCA - which has a structure similar to PTA - from carbohydrates, thus unlocking the door to the production of 100 percent biobased resin.

At a time when Avantium is attracting widespread attention from various quarters, Toyobo has forged the partnership with the

Market News

The Iwakuni Plant, which conducts olymerization

Dutch company on the strength of Toyobo's unique, state-of-the-art knowledge and manufacturing capability in this area. The two firms have previously interacted over PEF polymerization.

Biobased with high barrier performance

PEF films are purely biobased as they are made of FDCA produced from biobased carbohydrates and ethylene glycol, also biobased. Compared with PET, the material is 10 times more efficient in barring oxygen, and twice as efficient in barring water vapor.

Toyobo's ambitious marketing strategy

Currently, 100 percent biobased PET products are not commercially manufactured. Toyobo plans to market PEF as a new material that surpasses PET in terms of barrier performance. In collaboration with Mitsui & Co. (headquartered in Chiyoda Ward in Tokyo), Mitsui will sell PEF resin and films. Toyobo plans to provide sample products from 2017.

Toyobo already manufactures biobased resin products, including the high-melting-point biomass polyamide "VYLOAMIDE™," the amorphous polylactic-acid resin "VYLOECOL™," and the partially biobased packaging film "BIOPRANA™." The firm plans to increase its biobased resin products through PEF, expanding its production as a major, high-functionality commodity.

About Avantium

Based in Amsterdam, the Netherlands, Avantium is a state-of-the art chemical technology company operating in the field of renewable resources. The company is headed by Chief Executive Officer Tom van Aken.
(Source from: "toyobo - global.com")

GDM introduces smart manufacturing ready line

B8-W Grey improves flexibility of baby diaper production

Following GDM's Zero Time Solutions commitment, B8-W Grey is the next generation of diaper manufacturing machine solutions built with customer needs in mind. B8-W Grey is designed to improve the flexibility of baby diaper production by minimizing size change and raw material setting adjustments in the live factory setting. This newest line is GDM's highest expression yet of total flexibility represented by its patented Linear Motion and E-cams technology. According to sources at the manufacturer, "The objective of B8-W Grey is to optimize our customers' production process, minimizing the necessary time for product recipe, material and size setting activities."
(Source from: "www.nonwovens-industry.com")

Corbion introduces Luminy brand

Complete portfolio includes both high heat and standard PLA resins

Corbion has introduced its entire neat resin polylactic acid (PLA) portfolio under the new brand name Luminy. The name Luminy reflects the innovative, bright nature of PLA , alongside the natural, renewable origins - it is the luminous sunlight that provides life to feedstock for this new plastic. The portfolio includes both high heat and standard PLA resins, tailored to the most common plastics production technologies in various molecular weights.

Corbion's high heat PLA for high performance applications has been used in a new bioplastic mouse from Nager - IT as well as the well-known bioplastic touchscreen computer from Supla and Kuender. Also, high performance under-the-hood and interior automotive parts from Roechling and Plantura and the BioFoam surfboard from Synbra use the PLA. These parts demonstrate the performance possibilities for applications with high heat PLA.

Further, PLA bioplastic root protection containers have been developed to improve agricultural and environmental efficiency of rubber trees in Thailand: an application that has been nominated for the Bioplastics Award at the upcoming European Bioplastics Conference in Berlin, Germany.

Also, Corbion and Succinity, a joint venture between BASF and Corbion Purac, are promoting a model biopolymer compound of PLA and PBS (polybutylene succinate) that offers strong heat resistance, balanced mechanical properties, biodegradability and a high biorenewable content. The blended properties of PLA and PBS are interesting for various applications, such as food serviceware, food packaging and coffee capsules.
(Source from: "www.nonwovens-industry.com")

Market News

SCA to exit Mexican diaper market

Will continue to focus on feminine hygiene and adult incontinence in the country

SCA has announced it will exit the baby diaper market in Mexico as part of its effort to address markets with less than adequate profitability. The company will continue to focus on its market leading feminine hygiene, adult incontinence and tissue businesses in Mexico, which is its eight largest market based on its 2015 sales.

Total costs of the closure are estimated at SEK 170 million ($20 million). Last year, SCA's diaper business in Mexico reported sales of SEK 340 million.

SCA's decision follows Procter & Gamble's removal of its Pampers brand from Mexico in 2015. Meanwhile, rival Kimberly-Clark continues to find success in the country with a leading 70%, according to research group Euromonitor International. Mexican diaper sales are growing 2% per year.
(Source from: "www.nonwovens-industry.com")

Unicharm to change Chinese strategy

Company plans to make more product in Japan; focus on online retailing

According to a report in Japanese news source Nikkei Net,Unicharm is seeking to recapture Chinese business by exporting diapers from Japan rather than selling ones manufactured locally. As one of the early entrants into China''s diaper market, Unicharm currently operates five factories in the country but its business has wavered during the last two years.

Executives are blamining its misperception of the Chinese consumer needs for the company's troubles.

One misstep was the positioning of itsaffordable MamyPoko diapers as its main brand in China rather than the high-end Moony. The company also used large supermarkets and other conventional venues as sales channels. This game plan worked well until consumers sought higher-quality versions and turned to the online market. "Signs of a market change started emerging around 2013," president and CEO Takahisa Takahara recalls. "We should have responded a little sooner."

Unicharm's Asian business enjoyed operating margins of 13-15% through 2013. But the number started tumbling in 2014, sinking to just 6.9% for the first half of 2016 amid the Chinese diaper slump - weighing on the companywide figure of 10.2%. Inventory swelled, reducing shipments and lifting costs. It is expected to take until year-end before the company can rein in inventories.

Rather than locally made products, Chinese consumers prefer Japanese-made diapers for their safety and reliability.

In response to these problems, Unicharm is ramping up exports of Japanese-made diapers to China. This will be in part achieved through an energy-efficient, smart factory in the Fukuoka Prefecture town of Kanda, which slated to be completed by 2018. The plant is expected to drastically increase the company's capacity to export Moony diapers not only to China but to other Asian markets as well.

Unicharm will also increase sales of pant-style diapers, which are now made in China and Japan, to meet the shift in demand and bolstering e-commerce efforts by boosting spending on related marketing. The Chinese diaper business is seen turning a profit in 2017.

Kao's rival has been producing its Chinese-bound diapers in Japan for four years.
(Source from: "www.nonwovens-industry.com")

BFI ups capacity at Terni plant

€30 million investment will expand Meraklon specialty fibers and supply customers in hygiene and personal care

European polypropylene (PP) staple fiber supplier Beaulieu Fibres International (B.F.I.) announced a €30 million investment to extend production capacity at its Merkalon plant in Terni, Italy, and expand the Meraklon specialty fiber portfolio with new bico products.

The investment centers on a new hygiene line equipped with the latest, state-of-the-art long spin technology to meet the on-going

>>> Next 8

Market Trends

Wetlaid projected to grow 5.9%

Growth coming in sustainable segments

Wetlaid nonwovens, although the smallest nonwovens process type, still maintain an important market share with growth in some markets, notably wipes. They are in an ideal position to address the globally growing demand for more sustainable products. Smithers Pira's new report, The Future of Wetlaid Nonwovens to 2021 forecasts a market value of $982.6 million by 2021, with a projected annual growth of 5.9%.

Wetlaid nonwovens' ability to use large percentages of low cost, sustainable wood pulp as a raw material makes it one of only a few nonwoven processes that can produce affordable, biodegradable products. Disposability via biodegradation, compostability or even flushability are all possible and somewhat natural extensions of the wetlaid process.

"The wetlaid process is the most versatile in its ability to process diverse fibre types, from fiber glass and carbon to cotton and abaca. This versatility offers both cost and performance opportunities," says Philip Mango, author of the report.

Wetlaid nonwovens cover many and diverse end uses, including work and hazardous environment garments, interlinings, shoe inserts and synthetic leather goods, coating substrates and household applications. These discoveries allowed wetlaid to enter some of its largest end use markets, like wallcoverings and liquid filtration. Additionally, the use of short cut glass fibers, carbon fibers and other speciality fibres has allowed wetlaid products to enter newer speciality markets such as battery separators and electronic applications.

Wetlaid nonwovens are now slightly weighted toward durable end uses, with about 55%–62% of wetlaid volume and value being consumed by durable end uses. Disposable end uses accounted for 44.9% of wetlaid tons in 2016.

Wetlaid nonwovens are gaining in sustainable market segments, where wetlaid nonwovens' reliance on sustainable raw materials like wood pulp is a major positive. The inclusion of more wetlaid fiberglass nonwovens as nonwovens by definition has increased estimated and projected consumption. The net result is that wetlaid nonwovens continue to grow and it appears that this modest growth will continue.

The Future of Wetlaid Nonwovens to 2021 is based on an combination of in-depth primary and secondary research. Primary research included interviews with key participants in marketing, sales, production and product development for the entire wovens and nonwovens supply chain. Key participants interviewed included personnel from producers and raw material suppliers, as well as industry experts from major process equipment suppliers and industry consultants. Secondary research included information acquired from technical literature, reports, papers, conference proceedings, company information, and other trade, business or government sources.
(Source from: "www.nonwovens-industry.com")

Report highlights global and China SAP industry

SAP consumption in China expected to grow 20% annually from 2016-2020

Research and Markets has announced the addition of the "Global and China Superabsorbent Polymers (SAPs) Industry Report, 2016-2020" report to its offering.

Super absorbent resin (SAP) is the key raw material with which to produce disposable hygiene products like baby diapers, feminine hygiene products, and adult incontinence products. SAP has super water absorbing capacity.

At present, the global paper diaper market is experiencing rapid development, with an AAGR of over 15%. In 2015, the global SAP consumption increased by 8% year on year to 2.3 million tons. It is expected that in 2016-2020 the consumption would grow at a compound annual rate of some 7.8%, to an estimated 3.48 million tons by 2020.

At the end of 2015, the global SAP capacity reached 3.489 million tons per year, up 12% from a year earlier. And China contributed the largest portion of the global capacity, at

Market Trends

30.5% of the total.

China's SAP has developed at an astonishing paceover the past two years, with 2015's consumption rising 21.3% to 382 kilotons. However, with the introduction of Two-child Policy, and particularly driven by the rapid development of disposable hygiene products market, the SAP consumption in China is expected to grow at an average annual rate of 20% in 2016-2020, to 1.02 million tons by 2020.
(Source from: "www.nonwovens-industry.com")

Focus on geotextiles

Producers of nonwoven geotextiles across the globe continue to invest in their technologies

Geotextiles are a vital component of civil engineering and agricultural enhancement applications all over the world. Nonwoven geotextiles are used for road and railway construction, drainage systems, filtration, soil reinforcement, soil separation and more. In 2013, it was reported that nonwoven fabrics dominated the geotextiles market (compared to woven and knitted materials) with roughly 65% global volume.

Due to global infrastructure projects in the emerging markets of Asia Pacific, the Middle East and Latin America, along with governmental policies and environmental standards, demand for geotextiles is expected to grow. According to a recent study from Markets and Markets, the geotextile market is expected to reach $8.6 billion by 2019, growing at a CAGR (compound annual growth rate) of 10.59% from 2014-2019. Findings show that the Asia Pacific region is expected to dominate the market in value terms by 2019.

One of the advantages of using nonwoven geotextiles is the environmental factor. According to recent data from EDANA, about 750 square kilometers of geotextile nonwovens are manufactured and sold annually, and of this, 60% is used in road construction. If all new roads in the European Union were made with nonwovens instead of other materials like gravel, the association says it would result in a savings of 6.8 million tons of CO_2 equivalents. "By being lighter, thinner and more resource-efficient than gravel, nonwoven geotextiles offer both an environmental benefit, and cost savings to the user," the association says.

The following is a look at what's new from some of the key players in the nonwoven geotextiles market.

Dalco Nonwovens

Dalco Nonwovens, a needlepunch nonwovens manufacturer based in Conover, NC, maintains geotextiles as a substantial allocation of its overall manufacturing capacity. As a supplier to various markets, the company focuses on civil engineering products for drainage, separation, stabilization and reinforcement and filtration, as well as other applications. In addition, Dalco supports manufacturing of needlepunch nonwovens for the home furnishings, industrial, roofing and automotive markets.

According to Dalco's president Mark Evans, the company recently expanded its operations, with its fourth needlepunch line scheduled to be up and running by April. Three of the company's four lines are capable of producing nonwovens for geotextiles. "Geotextiles play an integral role in our overall business strategy. The geotextiles market has been a mainstay of our business, and we will continue to look at new ways to develop business," Evans says.

The primary raw material for geotextiles is polypropylene (PP), and unstable prices for PP, compared to others like polyester, has made planning raw material purchases a principal factor in the geotextiles market. "It's important for us to plan the best way we can to be successful in any given season," he says.

Dalco has seen more availability of overseas raw materials compared to four to five years ago when virtually no PP fiber was available abroad. Therefore, this new access to PP has changed the overall buying strategy to some degree. Dalco seeks to always buy its raw materials domestically to support its domestic suppliers, but the company also acknowledges the need to look at lower prices in order to stay competitive with market buyers.

Market Trends

Fibertex Nonwovens

Fibertex Nonwovens of Aalborg, Denmark, is one of the leading manufacturers of nonwoven geotextiles with a full range of products covering separation, filtration, drainage, reinforcement and protection. The company also produces a stress-relieving product for asphalt overlays, and offers a range of geosynthetics.

Last year the company increased its ownership interest in Fibertex South Africa, co-founded in 2010 and jointly owned by Fibertex Nonwovens, The Investment Fund for Developing Countries (IFU) and the South African company Safyr, from 26%-74.2% by purchasing the 48.2% Safyr shares, effective March 1, 2015. The transaction included the investment in a second state-of-the-art needlepunch production line, and the simultaneous purchase of the Safyr fiber line, along with additional land and buildings.

According to Fibertex, the transaction will create an important platform for the future development of Fibertex Nonwovens in Africa. This is a strategic initiative and Group CEO Jorgen Bech Madsen sees huge potential in having local production in South Africa. Fibertex South Africa has experienced significantly increased demand for South African infrastructure programs, as well as products serving automotive and industrial applications. "The investment in South Africa will help us to reach a position as market leader at the African continent," says Bech Madsen.

When characterizing the market as a whole, he says demand is good but they have seen an overinvestment in capacity. Regionally, Bech Madsen describes the European and North American markets as stabilized but still growing, while emerging markets are showing very strong growth. "However, at the moment, reduced prices and less demand for raw materials has led to less demand and less growth in emerging markets," he explains.

GSE Environmental

Headquartered in Houston, TX, GSE Environmental manufactures a versatile family of nonwoven geotextiles used in civil and environmental applications. Products offered are available in various weights and thicknesses to meet specific project requirements.

According to marketing manager Robin Vodenlic, the most common uses for GSE's geotextiles are asphalt overlay—working as a sealant and stress absorbing layer to help prevent reflective cracking on asphalt pavements; separation—the material helps maintain physical separation of two adjacent materials, helping to prevent the deterioration of engineering performance; filtration—GSE nonwoven geotextiles allow the passage of liquid while preventing the loss of soil particles; protection—geomembrane liners can be damaged during construction—a GSE nonwoven geotextile can be placed above and/or below the liner, providing a cushion to protect the geomembrane from damage over the entire life of a project; and drainage—in some instances, gas and vapors can become trapped by a geomembrane and must be vented—GSE nonwoven geotextiles can facilitate drainage of gas and vapors.

One of GSE's core geotextile products is CoalTex Filter. Vodenlic says the filter is structured with an apparent opening size (AOS) specially designed to allow filtration of very fine soils without such concerns as clogging and piping. This makes it ideal for even the most challenging environments such as Coal Combustion Products (CCPs). In fact, the company is seeing a lot of growth in the coal ash market due to recent regulations implemented by the Environmental Protection Agency (EPA), Vodenlic explains.

"The design of geotextile filters for very fine-grained soils is one of the most daunting geotechnical challenges," she says. "CoalTex geotextile is a component of the GSE CoalDrain geocomposite, which is designed specifically for use with CCPs, including fine-grained fly ashes, silts, and fine sands. Extensive laboratory and field tests have proven that the performance of GSE CoalDrain geocomposite meets or exceeds the filtration design requirements of CCP disposal sites."

Mattex Geosynthetics

Headquartered in Dubai, United Arab Emirates, Mattex Geosynthetics produces

Market Trends

nonwoven geotextiles in a state-of-the-art, vertically integrated facility in the Kingdom of Saudi Arabia.

"Mattex Geosynthetics has access to one of the best polymers just at its doorstep," says Philippe Grimmelprez, director sales, marketing and business development, referring to the direct access the company has to its raw materials that are manufactured next to its production sites. "With its own high tenacity fiber production, Mattex is able to produce one of the most regular, most consistent and performing geotextiles available on the market. The ultra modern production plant, designed for optimum productivity and optimal loadings, gave Mattex Geosynthetics its flying start since it began its operations."

One of Mattex's key regions is the GCC (Gulf Cooperation Council) market. While lower government budgets could have a negative impact on infrastructure, Grimmelprez indicates that it's opened up doors for nonwovens. "Lower government budgets force contractors and governments to look at more efficient ways to build. Geotextiles and geosynthetics in general allow contractors to build faster, better, cheaper and more environmentally friendly. This gives great opportunities for Mattex to offer alternative construction methods. Lower quality products are being pushed out of the market and better quality products are gaining market share," he says.

Sourcing locally is another advantage for contractors in the GCC states, giving Mattex an extra boost in the region, with more expensive imports losing market share. Grimmelprez says its quality products produced locally are displacing lower quality—often imported—products.

As it continues to be a key local source of materials for contractors in the region, the company has continued to increase the performance of its geotextiles and has invested heavily in quality control and research & development. As such, the company has made recent investments to improve its fiber, nonwoven and packaging lines, Grimmelprez says.

Skaps Industries

Based in Athens, GA, Skaps Industries manufactures geosynthetic and nonwoven drainage products for environmental and civil use in the U.S. and abroad. The company's nonwoven needlepunched geotextile materials are made with polypropylene or polyester staple fibers for use in separation, stabilization, reinforcement, drainage, filtration and asphalt overlay, according to Anurag Shah, vice president, business development.

Last year, Skaps added a brand new nonwoven line at its India location. "The primary aim is to cover Middle East and Asian countries. We can also access European Market from India. The spare capacity can be used to full fill our American continental needs," Shah says.

When comparing nonwoven geotextiles to alternative materials such as gravel, Shah says there are a number of benefits. "Nonwovens are relatively cheap, easily available and easy to install compared to natural alternatives. They can be altered in physical properties to enhance the performance for a particular purpose."

TenCate Geosynthetics

TenCate Geosynthetics produces a full range of polypropylene nonwovens for both civil and environmental applications. Some recent news from the Americas arm of TenCate, based in Pendergrass, GA, is the investment and completion of a new needlepunch line at its facility in Jefferson, GA.

Todd Anderson, vice president of sales & marketing, describes the geotextiles market as very competitive, with a range of companies vying for share. Despite this competition, TenCate seems optimistic about where the market is headed. "Construction activity drives nonwoven geotextile demand," he says. "Recent federal government highway programs should provide a solid foundation on which to build a growing business. Spending in the residential and commercial segments is also generally strong." Additionally, a factor that will contribute to growth in the geotextiles market is the continued adoption of these modern and innovative solutions, which will push further

Market Trends

development of the materials, he says.

Anderson cites TenCate's Mirafi RS580i as one of these developments. "Mirafi RS580i, the best performing geosynthetic in a recent study, is the result of years of product and application development which led to the introduction of a product for roadways that speeds construction and saves aggregate while protecting the environment and providing a better roadway."

Thrace Nonwovens and Geosynthetics

Thrace Nonwovens and Geosynthetics, Athens, Greece, produces needlepunched nonwovens for the geosynthetics market, specifically to provide reinforcement, separation, filtration, drainage, protection and erosion control.

According to the company, the main difference between its nonwoven and woven geotextiles is that nonwoven geotextiles are more likely to stretch under the same conditions and have the ability to let water flow along the plane of the geotextile more effectively.

George Papagiannis, sales and marketing manager, says geotextiles is a key market where the company is seeing needlepunch displace other textile technologies. "In the geotextile marketplace, needlepunch nonwoven products continue to be produced at higher tensile strengths at lower weights using the advancements in equipment and processes. This, combined with high flow rates, is enabling needlepunch products to take market share from woven geosynthetics."

In fact, Thrace has recently invested in a new needlepunch line that will be up and running in the second quarter of this year, which will serve the geotextile markets along with automotives, industrial and bedding, Papagiannis reports.
(Source from: "www.nonwovens-industry.com")

Bondex makes spunlace investment

New line will supply spunlace to filtration market and other specialty applications.

Bondex, Inc. has invested $15 million in an expansion to add hydroentangled spunlace products to their existing portfolio, which currently includes flat and point bonded thermal nonwovens and various laminated and coated products.

The spunlace process technology from Trützschler includes a 400 bar high pressure hydroentangling unit fed by a fiber processing line. These assets will provide Bondex with the capability to produce a wide range of spunlace fabrics from various fiber systems including PPS, Meta and Para Aramid, PET, PP and polyimide in weights ranging from 20 to 600g/m² (0.5 to 18 oz/yd²) and in widths up to 225cm (88"). The investment also includes a wide range of finishing equipment such as singeing, calendering, laminating, chemical impregnation, heat setting and slitting.

Bondex plans to provide spunlace material to the filtration market and other specialty applications. The spunlace technology provides recognized advantages in air pollution control filter media including high collection efficiencies equal to ePTFE membrane laminates. The filtration solutions will be commercially available in the fall of 2016 and marketed under the Hydrolox brand name.

Bondex Inc. is part of the Andrew Industries Group which has been a leader in the industrial filtration market for many years. The filtration market has identified unmet needs in the area of collection efficiency and robustness of the filter bag which can be addressed through a highly engineered Spunlace solution. Bondex Inc. is committed to continued innovation that will enable the development of other technical fabrics for various applications outside the filtration space including protective apparel, electrical insulation and fire blockers
(Source from: "www.nonwovens-industry.com")

Sapro to make spunlace In-House

EBRD loans wipes maker funds to make nonwovens

The European Bank for Reconstruction and Development (EBRD) is extending a €3 million loan to Sapro, a Turkey's largest wet wipes producer. Sapro was founded by Ceyhun Zincirkıran and Mehmet Gündoğdu in 1997.

Seventy-five per cent of Sapros sales are in the European markets where they are primarily sold

Market Trends

as private label products in large European retail chains. In Turkey, Sapro produces wet wipes under the brand name Hops.

The EBRD's loan will finance part of the working capital required to start Sapro's spunlace line to support its wipes business. As the main raw material for Sapro's wipes, spunlace accounts for more than half the cost of the final product, according to the company.

Sapro has been outsourcing its spunlace nonwovens. Backward integrating into nonwovens production will help significantly cut its costs and increase the company's competitiveness and resilience domestically and abroad, according to executives. Zincirkıran, the co-owner and chairman of the board, says, "The EBRD is one of the most important international financial institutions in Europe. Its contribution and support will help us achieve our goal of becoming the most important player in our sector."

Frederic Lucenet, EBRD director for manufacturing and services, says: "We are impressed with the story of this Turkish exporter. We see great potential and are happy to support Sapro's growth as the market for wet wipes continues to grow in Turkey and elsewhere."

To date, it has invested over €7 billion in the country through more than 180 projects in infrastructure, energy, agribusiness, industry and finance. It has also mobilised about €17 billion for these ventures from other sources of financing. Sapro has not announced who will be supplying its nonwovens production line.
(Source from: "www.nonwovens-industry.com")

Rekze laboratories introduces scalp wipes

Wipes are designed to create optimal conditions for hair growth

Rekze Laboratories has launched the world's first scalp wipes designed to cleanse the scalp and create optimal conditions for hair growth, while helping make hair look thicker. The '28' scalp wipes combine over 28 ingredients specially chosen to help treat hair thinning and shredding hair supporting healthy hair growth.

In the form of a packet of 15 wipes, '28' scalp wipes make it easy to clean the scalp and restore its natural moisture balance, as maintaining a healthy scalp is essential to optimal hair regrowth. Products carefully created and designed, the wipes help maintain the delicate hair follicles of the scalp in their healthiest possible state for the production and maintenance of optimal hair at every stage of life.

The formula incorporates active ingredients that condition, nourish and moisturize the scalp, while helping make hair look thicker. Sphinganine has been found to stimulate the formation of essential building blocks like proteins and ceramides by improving the scalp health and rebalancing the life cycle of hair. Another compound playing an important role in the formula and helping the hair to regrow is Apigenin. A bioflavonoid found in leafy plants and vegetables, it stimulates the microcirculation in the scalp encouraging the hair to grow. It also acts as an anti-inflammatory, anti-oxidant, anti-irritant, lightening agent, anti-carcinogenic, and antiseptic. Rekze's unique formulation for '28' scalp wipes for the scalp adds Cinnamomum zeylanicum bark extract, which serves as anti-bacterial, anti-fungic, and has soothing properties, Biotinoyl tripeptide-1 (Biotinyl-GHK) to stimulate cell metabolism, and Kigelia africana fruit extract whose flavonoids (lutelol and apigenol), terpenes (ursolic acid) and rosmarinic acids inhibit 5α- reductase, and has strong antioxidant and anti-inflammatory properties. At the same time Ginkgo biloba leaf extract in the wipes improves tissue irrigation and activates cellular metabolism.
(Source from: "www.nonwovens-industry.com")

Market Trends

FiberVisions to showcase next generation fibers at hygienix

Bico and trilobal PP hygiene fibers provide softness to topsheets

FiberVisions and ES FiberVisions will highlight their next generation of bicomponenent and trilobal polypropylene hygiene fibers which utilize through-air bonding technology at Hygienix 2016, Oct. 24-27, 2016, in Orlando, FL.

"As the world leader in polyolefin and bicomponent fibers, we have been participating and innovating in this market for over 30 years and we are confident that soft coverstock will continue to be widely desired by consumers," explains John Wolhar, Americas Hygiene regional sales manager, FiberVisions. "FiberVisions is uniquely positioned to be an innovation partner to both brand owners and nonwoven producers, and we are excited to be able to develop prototypes via our nonwoven pilot lines."

Wolhar continues, "We will be promoting our 1.5-denier bicomponent fibers for diaper and femcare topsheets to provide customers with improved fluid management and significant softness for the next generation of hygiene products. These bicomponent fibers, when blended with trilobal mono polypropylene or bicomponent splittable fibers, can significantly enhance the soft hand feel of nonwovens. Furthermore, the increased void volume present from carded through-air fabrics can improve fluid-management systems in diapers when developed with the right acquisition layer structures."
(Source from: "www.nonwovens-industry.com")

Toray absorbs battery separator business

Battery separator business is key part of company's green innovation project

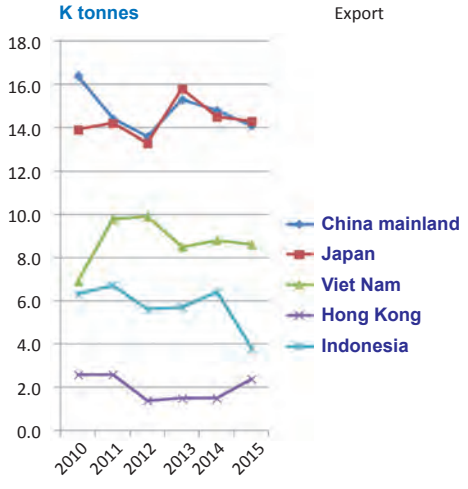
Toray Industries, Inc. has made a decision to absorb Toray Battery Separator Film Co., a wholly owned consolidated subsidiary that manufactures and markets separators for lithium-ion secondary batteries (LIB) effective April 1, 2017. The merger is a simplified merger of a wholly owned subsidiary and therefore some of disclosure items and contents are omitted.

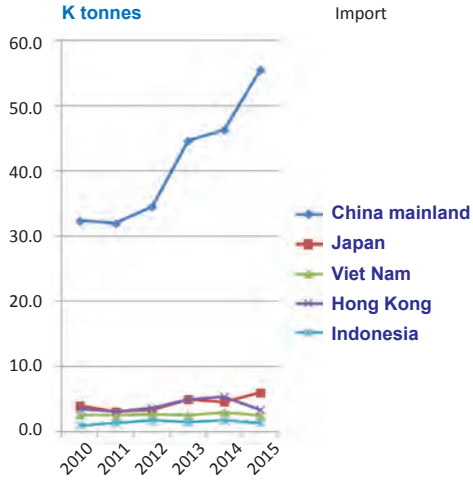
Toray decided to absorb Toray BSF to strengthen the foundation of the structure to appropriately respond to the LIB separator business. The LIB separator business is one of the key businesses of the Green Innovation Business Expansion Project, which Toray is strongly driving forward to support the transformation into a sustainable recycling-oriented society. The company will promote its technology development and business expansion by leveraging the collective strength of Toray Group along with other new energy-related businesses.

The signing and approval of the merger agreement is planned for December 2016.
(Source from: "www.nonwovens-industry.com")

<<< Continue 20

Top 5 countries in export & import of korea





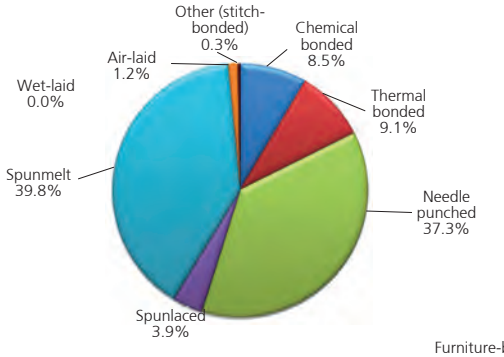
Korea nonwovens production

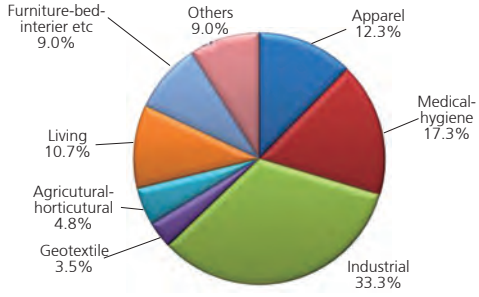
Korea nonwovens production (2008~2015)

(Source: KNIC)

	2008	2009	2010	2011	2012	2013	2014	2015
K tonnes	214.8	220.2	224.9	233.2	226.2	217.1	221.3	216.2
Mil.USD	827.0	847.0	865.0	897.8	872.0	837.1	853.1	833.2
USD/kg	3.85	3.85	3.85	3.85	3.85	3.86	3.85	3.85

Korea nonwovens production by technology & application (2015) (216.2 K tonnes)





Korea trend in export & import (2010 – 2015)

		2010	2011	2012	2013	2014	2015
K tonnes	Export	83.3	78.9	77.5	79.8	77.8	70.4
	Import	48.9	48.1	50.7	63.8	80.5	91.5
Mil. USD	Export	348.4	397.9	387.8	397.5	404.4	400.4
	Import	212.7	248.7	250.7	281.6	334.0	344.0
USD/kg	Export	4.18	5.04	5.00	4.98	5.20	5.69
	Import	4.35	5.17	4.94	4.41	4.15	3.76

>>> Next 19

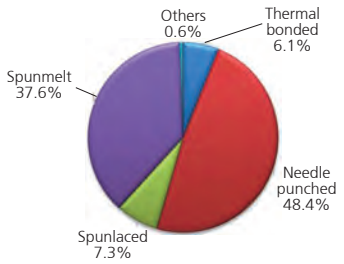
Indonesia nonwovens production

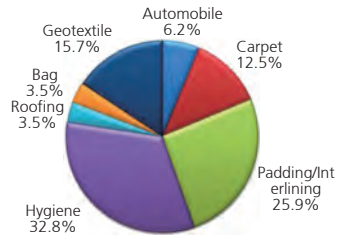
Indonesia nonwovens production (2011~2015)

K tonnes

	2011	2012	2013	2014	2015
Thermalbonded					4.2
Needlepunched					33.3
Spunlaced					5.0
Spunmelt					25.9
Others					0.4
Total	-	-	-	-	68.7

Indonesia nonwovens production by technology & application (2015) (68.7 K tonnes)



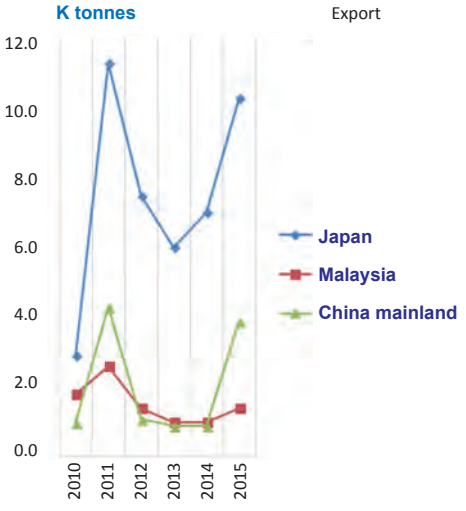


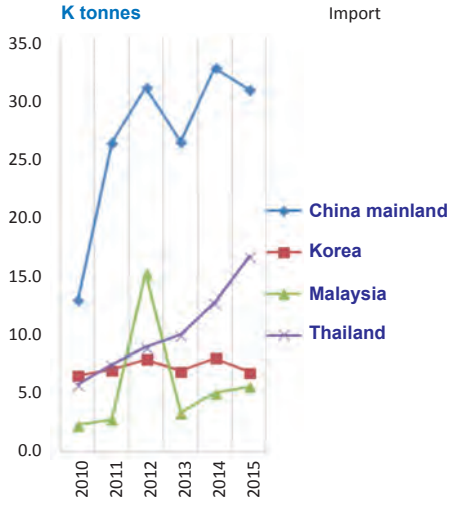
Indonesia trend in export & import (2010 – 2015)

(Source: INDONESIA)

		2010	2011	2012	2013	2014	2015
K tonnes	Export	12.3	10.9	14.9	14.5	19.6	21.3
	Import	37.0	55.8	77.5	56.4	73.2	72.1
Mil. USD	Export	36.8	36.8	68.1	62.8	73.6	68.4
	Import	155.4	215.7	237.2	227.7	279.9	274.1
USD/kg	Export	2.99	3.38	4.57	4.33	3.76	3.21
	Import	4.20	3.87	3.06	4.04	3.82	3.80

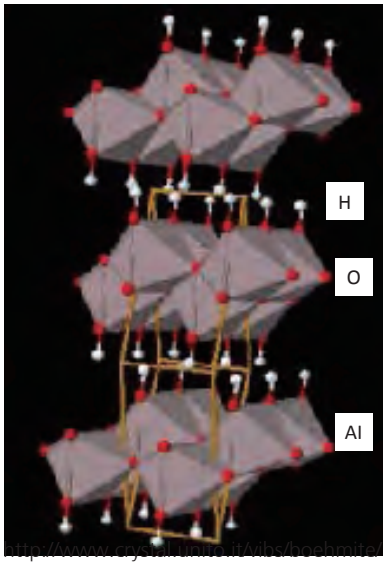
Top 3~4 countries in export & import of Indonesia





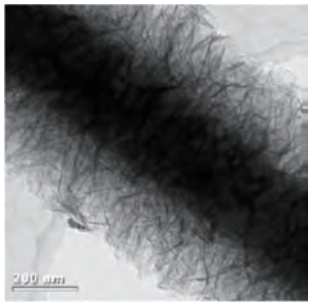
Properties of electrical adsorption water filtration media

Eric Liang, Sales Director,
Ahlstrom Sales Taiwan Office



A new water filtration technology

This is an electroadsorptive media based on microglass fibers that are functionalized with the mineral pseudoboehmite AlO(OH). This manufacturing method allows us to produce a depth filter media using standard wet laid nonwoven manufacturing technology.



R.Ristau, IMS, UCONN

Activated alumina mineral: Pseudoboehmite

- A new electroadsorptive technology based on microglass functionalized with the mineral pseudoboehmite AlO(OH).
- Pseudobohemite platelets of AlO(OH) or aluminum oxide ydroxide
- Stable Material: Chemical, thermal, mechanical, pH 5-9 and in excess of 100C
- Proven Technology: Commercial product sold globally for > 8 years.

Media has ~ 2um average pore → high flow rate + low pressure drop

* With a thickness of 0.8 mm and an average pore size of less than 2 microns the media has high flow rate and very low pressure drop.
* There are approximately 400 layers of such pore structure in the thickness of the filter media to produce a torturous path the contaminants must travel through the media.

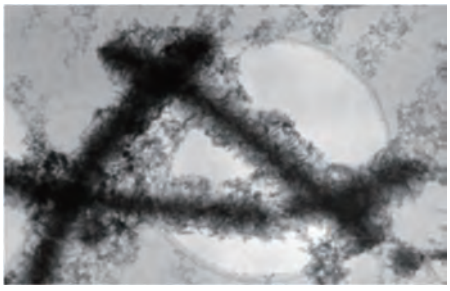


Photo courtesy of R.Ristau, IMS, UCONN

Is an electroadsorptive media

* When exposed to water between pH 5 – 9, an electropositive charge field is generated by the natural crystal structure of the AlOOH.
* The resulting charge field radiates to a distance greater than 1 micron from the fibers as represented by the red shaded area.

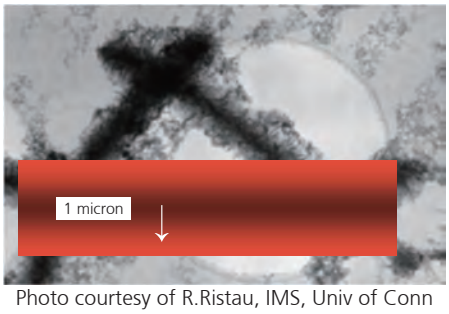


Photo courtesy of R.Ristau, IMS, Univ of Conn

Total void volume charge field coverage → High efficiency + high Capacity

* Submicron contaminants are removed through electroadsorption, not mechanical filtration.
* When expressed as streaming zeta potential, the charge field of the media has been consistently measured as greater than 53 millivolts at pH 7.2.

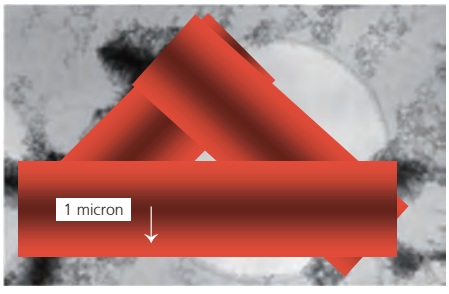
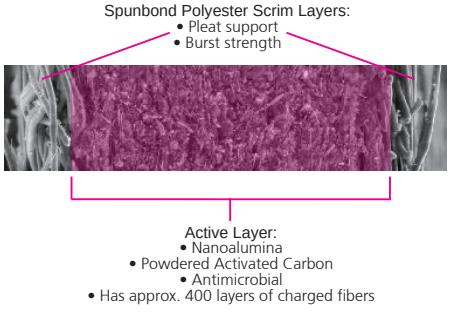


Photo courtesy of R.Ristau, IMS, Univ of Conn

Cross section of Disruptor® media

Disruptor® is a 3 layer laminate: Core is the active, alumina filter media with spunbond laminate on outside for strength and pleat support.

Unique Benefits: High flow, low pressure drop, submicron retention



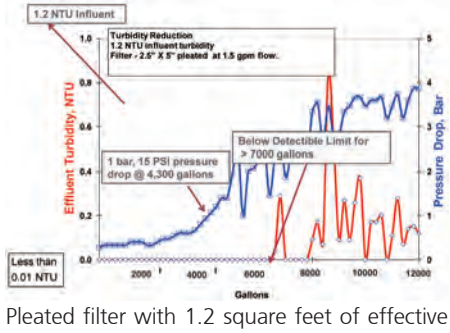
Disruptor® Water Filtration Technology offers good benefits

1) Non Chemical Cyst, Bacteria and Virus removal Platform

Technology News

2) High Efficiency – Remove Bacteria even Virus and Chemicals
3) Low Pressure – (Eliminates pump) Power Saving
4) High Flow Rate – (Eliminates holding tank)
5) No reject water (as with RO membranes) – Water saving
6) High Treatment Capacity (Volume) – Design Possibilities
7) Applicable for all water applications: Personal, Residential, Commercial, Industrial, Municipal.

Cartridge efficiency and life



Pleated filter with 1.2 square feet of effective surface area, 1.5 gpm flow rate with no detectable turbidity for > 7,000 gallons. Reached 1 bar pressure drop at about 4,300 gallons.

Virus and bacteria reduction Estimated biological capacity per

Ahlstrom filter media Escherichia coli(ATCC11229, EC) and MS2 Virus(MS2) Dechlorinated Tap Water Study							
0% of Designed Capacity							
BCS ID	Volume Passed	EC Influent Conc. cfu/mL	EC Effluent Conc. cfu/mL	Percent Removal	MS2 Influent Conc. pfu/mL	MS2 Effluent Conc. pfu/mL	Percent Removal
1602206	N/A	$6.9x10^5$	< 0.45	>99.99993%	$4.5x10^5$	< 0.45	>99.9999%
1602207	N/A		< 0.45	>99.99993%		< 0.45	>99.9999%
33% Capacity							
1602206	15L	$5.1x10^5$	< 0.45	> 99.99991%	$4.4x10^5$	21.3	99.995%
1602207	15L		< 0.45	> 99.99991%		17.2	99.996%
66% Capacity							
1602206	25L	$5.5x10^5$	< 0.45	> 99.99991%	$4.2x10^5$	940	99.800%
1602207	45L		< 0.45	> 99.99991%		68.6	99.980%
100% Capacity							
1602206	46L	$6.1x10^5$	< 0.45	> 99.99992%	$4.0x10^5$	2200	99.500%
1602207	84L		< 0.45	> 99.99992%		154.5	99.960%

square foot of media

Biological Concentration		Biological Capacity
per ml	per Liter	Volume per ft^2 (Liters)
1000	$1.0x10^6$	500000
10000	$1.0x10^7$	50000
100000	$1.0x10^8$	5000
1000000	$1.0x10^9$	500

– A biological concentration of 1,000,000/ml would be consistent with highly polluted river water or raw sewage.

– For Tap water per WHO Regulation Total Bacteria <100cfu/ml, ignoring other contaminants, Disruptor capacity=500,000 liters/sq ft.

Bacteria testing: with silver

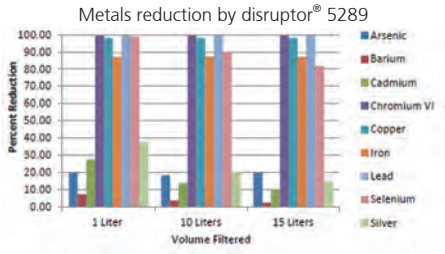
Ahlstrom internal test using an employee's well water. No bacterial breakthrough seen through life of the test doing weekly testing.

Metals removal - Selected metal reduction data

Percent Reduction of Metals by Disruptor@ Media		
	5288	5289
Chromium VI	99.5%	99.5%
Copper	98.1%	98.1%
Iron	87.2%	87.2%
Lead	99.5%	99.5%
Seleniun	85.9%	81.7%

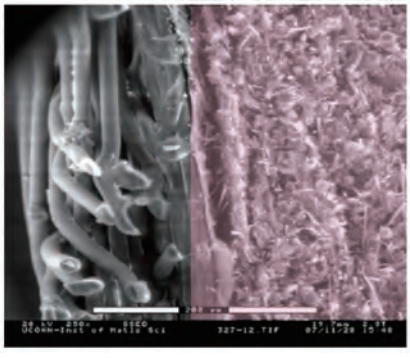
5288 – Standard media
5289 = PAC media
Results show metals are reduced by electroadsorption, not PAC.
Testing was performed by an independent lab using 47 mm discs with a solution of metal salts.

Metals reduction testing 5289



Testing showed significant reductions in Chromiun VI, Copper, Iron, Lead, and Seienium. Samples contained $0.0475ft^2$ of media and were tested with 15 Liters of challenge water. This would be equivaient to 315 liters per square foot of media.

Edge view of media containing PAC



A version of the media containing Powdered

Technology News

Activated Carbon (PAC) removes a wide range of organic, inorganic and chemical contaminants through the combination of the powerful electropositive charge field, the very small powdered activated carbon particles, a torturous path through the media and the depth of the media itself.

Features of Activated alumina media + PAC

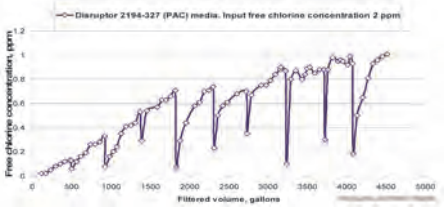
• Disruptor® PAC (Powdered Activated Carbon) contains carbon particles where 100% of the particles will pass through a 325 mesh screen.

• Retention of the PAC is aided by the electroadsorptive charge field during the wet laid paper making process. This property retains smaller particles of carbon than is possible by mechanical entrapment alone, as is typical with other nonwovens containing granular activated carbon (GAC).

• Using carbon with a very high surface area to mass ratio produces extremely rapid reaction kinetics for removing chlorine, bromine, iodine, PCB's and microcontaminants.

• Silver treated zeolites can be added to inhibit growth of bacteria retained by the media.

PAC cartridge tested at 2.25 ppm chlorine



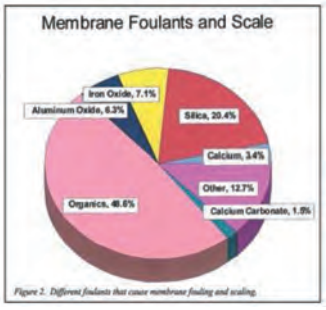
Testing used a pleated 62 mm X 250 mm cartridge having approximately 24 grams of PAC in an effective surface area of 0.3 square meters.

A total 17,000 liters of water was filtered having an input concentration of 2.25 ppm before reaching an output concentration of 1.01 ppm. The result corresponds to adsorption of approximately 958 mg of free chlorine per gram of PAC.

Membrane biofoulants

• Typical biofilm constituents:
- Virus, bacteria, cell debris, protiens, colloids, natural organic matter (NOM), iron and silica

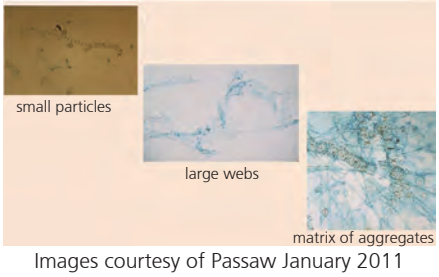
• Other known biofoulants include cellular compounds such as:
- Lipids (hydrophobic and hydrophylic)
- Phospholipids
- Amino acids
- Carbohydrates
- Glucose – mono and poly saccharides



Transparent Exopolymer Particles (TEP)

TEP is produced by bacteria, diatoms, phytoplankton, shellfish and possibly other organisms

Physical properties include:
- Discrete amorphous particles to macro gels 0.4 to 100 microns in size
- Highly deformable
- Large surface area
- Transparent
- Electronegative
- Sticky
- Difficult to detect



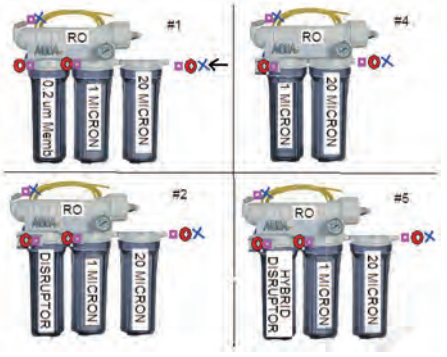
Images courtesy of Passaw January 2011

Basic water characteristics

Parameter	Resuit	Units
Ca	34	mg/L
Mg	5.4	mg/L
Na	17	mg/L
Fe	ND	mg/L
Mn	ND	mg/L
So_4	5.6	mg/L
Sio_2	9.2	mg/L
TOC	2.5-14	mg/L
TDS	135-180	mg/L
Turbidity	8.3	mg/L

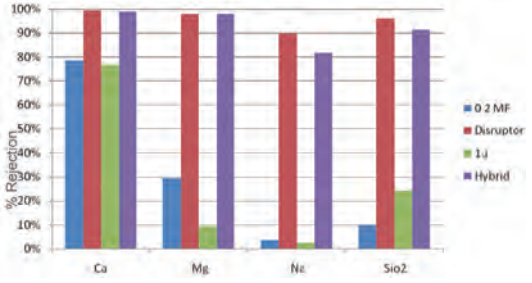
Technology News

RO pre-filter study



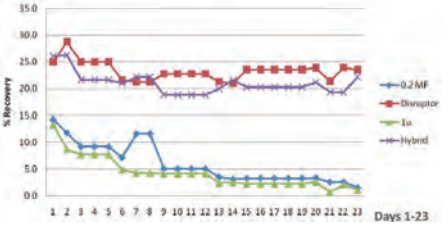
A RO prefiltration study was conducted for 24 days with the same feed water being sent to all four systems at the same time. Each unit was protected by a different prefilter.
#1 0.2 micron pleated membrane
#2 Disruptor® pleated filter
#4 1 micron meltblown filter
#5 Disruptor® hybrid filter

Ca, Mg, Na, SiO rejection by RO systems



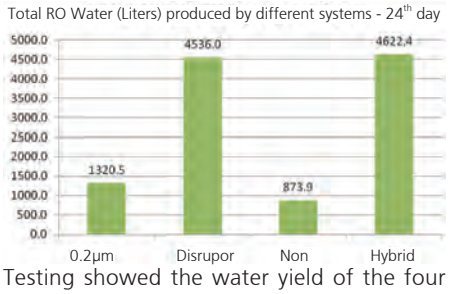
- RO membranes pre-filtered using Disruptor® had significantly higher rejection rates for Magnesium, Sodium, and Silica
- Calcium rejection levels were similar-slightly higher with Disruptor®

RO filtrate (Water) produced = % recovery



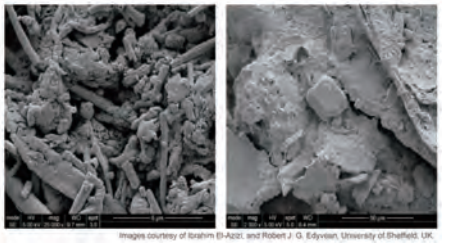
- The percent recovery is the percentage of total influent that was turned into permeate by the membranes in each test system.
- RO membranes pre-filtered with the 0.2u polymeric and the 1u exhibited significantly lower initial permeate recovery and declined significantly over the study period.

Total RO Water produced - 24th day



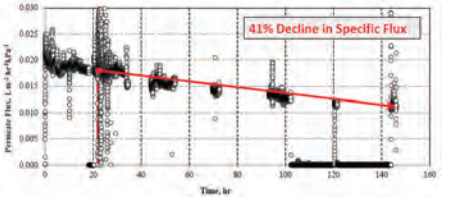
Testing showed the water yield of the four different systems under the same water source, system flow and inlet pressure conditions when it is 24 days after the test. Obviously, the performance from Disruptor® and Disruptor® hybrid filters is far better than other commonly used filters before RO.

SEM of Disruptor® surface: New and fouled



RO Flux without Disruptor®

RO Membrane Fouling Tests



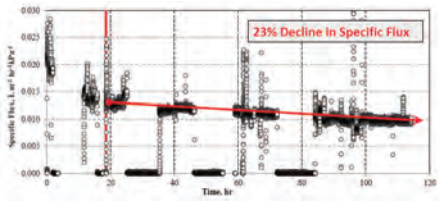
Dr. J. Brant University of Wyoming

Membrane: DOW XLE
Membrane Conditioning: Membrane Compacted with Electrolyte Solution for 22 hrs
Operationg Pressure: 200 psi(constant pressure variable flux)

- Unpolished feed water resulted in 41% decline in specific water flux
  · Visual organic deposition / discoloration of RO membrare
  · Fouling over 120 hrs of operation
- Maintenance of constant flux would require a 41%
  · 200 psi versus 282 psi

RO flux with Disruptor®

RO Membrane Fouling Tests



Dr. J. Brant University of Wyoming

Membrane: DOW XLE

Membrane Conditioning: Membrane Compacted with Electrolyte Solution for 19 hrs

Operationg Pressure: 200 psi (constant pressure variable flux)

• Polished feed water resulted in 23% decline in specific water flux

· Minimal discoloration of RO membrane

· Fouling over 120 hrs of operation

• Maintenance of constant flux would require a 23% increase in feed pressure

· 200 psi versus 246 psi

Summary and conclusions

Disruptor® vs. Competitive Technologies

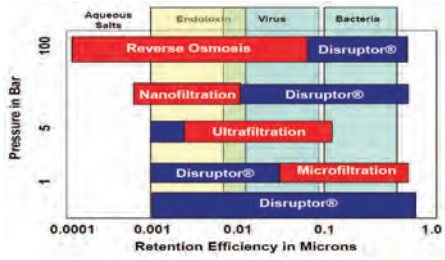
Water Remediation Technologies - Residential, Commercial, Industrial, Municipal, Desal								
	Disruptor® PAC Technology	RO	NF	UF	MF	Particulate Cartridges	Carbon Block	Ultra Violet
Contaminants								
Dissolveed Salts		x						
Endotoxin	x	x	x	x	x	x		
Virus	x	x	x					x
Bacteria	x	x	x	x	x	x	x	x
Cysts	x	x	x	x	x	x	x	x
Polysaccharides(TEP)	x	x	x	x	x			
Colloids	x	x	x	x				
Particulates	x	x	x	x	x	x	x	
Chemical Reduction	x	x					x	x
Trace Pharmaceuticals	x	x					x	x

Membrone definition: Reverse Osmosis = RO; Nanofiltration = NF; Uitrafiltration = UF; Microfiltion = MF

Disruptor® technology can be thought of as having similar performance to an ultrafiltration membrane but requires much less operating area per gallon of water produced per minute.

That is: Disruptor® provides excellent filtration efficiency at higher flow rate and capacity, and at lower operating pressure.

Value of Disruptor® in water filtration



• Prefilter to RO and NF to reduce biofouling

• Post filter to UF or MF to improve effluent quality

• Stand alone nonwoven filter having similar performance to NF membranes

Design considerations and applications

Disruptor® performance and life will benefit from proper system design

• Use prefiltration for water with high particulates, organics or colloids – Use Particulate filter, "hybrid filter" or Disruptor® High Flow as needed

• Use MF as pre-filter to give long life at low pressure drop

• Use with carbon block if VOC claim or high chemical reduction is required

• Pre RO and post UF to improve RO performance and life

• Post RO to remove bacteria from holding tank water and the plobings

• Use Disruptor alone for Personal use bottles, water pitchers, tap filters, undersink, countertop and water dispensers

• Also applicable in Commercial use for ice machines, beverages (tea, coffee soft drinks, juice)

(The article extract)

<<< Continue 28

WEKO application systems also score well when it comes to sustainability. The capacity of the liquid tanks is variable and can be chosen according to the respective application conditions. Only a small amount of residual liquid is generated.

Non-contact application also prevents fibers, particles or pigments from being carried over into the downstream application liquids. The liquids remain largely clean and can therefore be reused for subsequent jobs, depending on the chemical stability. In addition to the positive environmental balance, disposal costs can be significantly reduced.

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

Technical Trends

Small-Sized disposable pull-on diaper

U.S. Patent No. 9,278,032 B2

A disposable pull-on diaper comprising: a longitudinal axis and a lateral axis; an absorbent main body comprising a liquid pervious topsheet, a liquid impervious backsheet, and an absorbent core disposed therebetween; wherein the absorbent main body has left and right longitudinally extending side edges, and front and back transversely extending end edges that intersect with the longitudinally extending side edges at substantially a right angle, longitudinally opposing front and back waist panels, and a crotch panel between the waist panels, at least one leg elastic material disposed in proximity to each of said side edges and extending generally linearly and longitudinally, parallel with the longitudinal axis, along said side edges; a ring-like elastic belt comprising a front belt portion and a back belt portion joined to each other at side seams such that the back belt extends beyond the front belt at two leg openings, each of said front belt portion and back belt portion has transversely extending proximal and distal edges, the distal edge of the ring-like elastic belt defines a waist opening, the proximal edge being located closer than the distal edge relative to the crotch panel of the absorbent main body, each of said front belt portion and back belt portion has a central panel, and left and right side panels contiguous with its central panel; wherein the transversely extending proximal edges of the front and back belt portions are longitudinally offset from each other, but are parallel with each other and with the transverse axis; wherein the ring-like elastic belt comprises a belt substrate layer and a plurality of waist elastic strands and a plurality of side panel elastic strands each extending in the transverse direction, parallel with the lateral axis, and attached to the belt substrate layer; wherein said waist elastic strands are disposed in proximity to the distal edge and said side panel elastic strands are disposed at least in the left and right side panels, and wherein the ring-like elastic belt has a stretched waist circumferential length and a free-state waist circumferential length; wherein, the central panel of the front belt portion is joined to the front waist panel of the absorbent main body, the central panel of the back belt portion is joined to the back waist panel of the absorbent main body, and the proximal edge of the respective left and right side panels of the front belt portion and the back belt portion together with the left and right side edges of the crotch panel of the absorbent main body defines the two leg openings, each of the leg opening has a leg opening length which can be calculated according to the following formula: leg opening length=$Le+Sf+\sqrt{Sb^2+La^2}$ wherein Le indicates leg elastic length, Sf indicates front side panel elastic length, Sb indicates back side panel elastic length and La indicates the difference in a longitudinal length of the front belt portion and back belt portion; and wherein said stretched waist circumferential length is no greater than about 700 mm, and the ratio of the stretched waist circumferential length to the free-state waist circumferential length is from about 2.5 to about 2.8; and wherein said leg opening length is from about 250 mm to about 300 mm; wherein a longitudinal length of the front belt (LF) is less than a longitudinal length of the back belt (LB).

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

Combined compression and absorption dressing/bandage

U.S. Patent No. 9,271,877 B2

A combined compression and absorption dressing/bandage, which includes an inner layer sandwiched between a first outer layer and a second outer layer; wherein: the inner layer is a short stretch compression bandage comprising a knit scrim; the first outer layer comprises a first absorptive wound dressing that is in direct contact with a first surface of the inner layer, the first absorptive wound dressing comprising at least one first absorbent layer having a first operative inner surface and a first operative outer surface; the second outer layer comprises a second absorptive wound dressing that is direct contact with a second surface of the inner layer, the second absorptive wound dressing comprising at least one second absorbent layer having a second operative inner surface and a second operative outer surface; the first and second absorbent layers each comprise a nonwoven fabric of any one or more of cotton, viscose and polyester fibers; the first operative inner surface is in direct contact with the first surface of the inner layer; the second operative inner surface is in direct contact with the second surface of the inner layer; and the first and second outer surfaces face away from the inner layer.

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

Product News

Avgol introduces Lux family of products

SB, SMS line offers soft touch for hygiene products

Suitable for baby diapers, adult incontinence and feminine hygiene products, the Avgol Lux family of nonwoven fabrics has been designed to provide hygiene product manufacturers with a new visually distinct soft touch fabric solution.

Suitable for top sheet, back sheet and leg cuff applications, as well as ear and landing zone substrates, Avgol Lux meets the needs of the latest hygiene product design trends around the world.

In development for a number of years, significant research and development investment has been made in the Lux range across a number of product performance parameters, optimizing softness and mechanical properties. The range has achieved great market feedback and was launched in Asia in recent months.

Today the products in the Lux family are all visually distinct and create a soft perception with bulk for the consumer and are differentiated by their touch performance. Thye include Avgol SB & SMS Lux - Soft touch, Avsilk SB & SMS Lux - Silky smooth softness and Avsoft & Avspun SB & SMS Lux - cotton softness.

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

WEKO offers precise fluid application to nonwovens

Non-contact application has many benefits

WEKO, Weitmann & Konrad GmbH & Co. KG, is a recognized partner for functional finishing equipment all over the world. Manufacturers and finishers of high-quality nonwovens offer a large selection of different functionalizations, e.g. hydrophilic, hydrophobic, antimicrobial, perfuming, flame-retardant, dirt-repellent or smoothing finishings. Liquid, water-based dispersions applied to the nonwovens are usually used for these functionalizations.

An application system specifically developed by WEKO offers high production and cost benefits compared to conventional application methods. Using the slogan "Don't play - work with precision!" WEKO positions itself on the international market with a high-precision system that applies finishing chemicals on the nonwoven web in exactly metered quantities and absolutely clean – without gimmicks and wasting resources.

The finest micro-droplets are generated with the WEKO application system and then applied to the web by kinetic energy. Even smallest amounts of liquid can thus be applied to webs up to 7 m wide, uniformly and consistently.

The WEKO system lets users adjust and control the application quantity so that the desired function of the finishing is reliably provided while reducing the amount of liquid required to a minimum. Enormous savings – due to minimizing the applied liquid and, in addition, the marked reduction of the required drier energy – are the result.

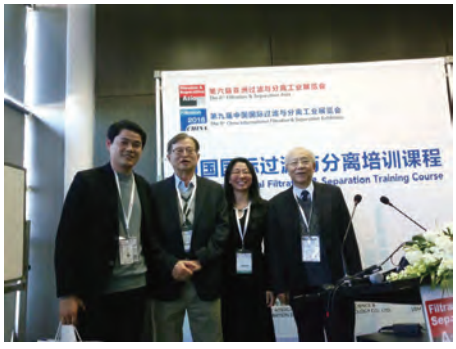
Further, WEKO application systems work contactless. The web remains dimensionally stable, both in length and width, and retains its original volume. Compared to touch and roller systems, the nonwoven web is not stretched by system-related tensile forces and does not require squeezing through rubber rollers either. This produces greater product quality.

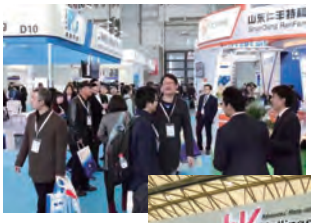
In addition, thanks to the non-contact application extreme web speeds can be realized, especially with very thin nonwovens.

Thanks to the flexible rotor application liquid can be applied either to one side only or to both sides. Liquid application can be freely selected depending on the configuration of the system. Hydrophobic applications can be applied to one side, for example, to facilitate lamination of the back side. Likewise, applications can be realized where each side is finished with a different function. Even wet-in-wet applications can be produced thanks to the non-contact application as well as exact and minimum application quantity.

>>> Next 26

行业信息





第六届亚洲过滤与分离工业展览会 第九届中国国际过滤与分离工业展览会在上海新国际展览中心举行

由中国技术市场协会(CTMA)，过滤与分离专业委员会(CFS)，上海希达科技有限公司(CNTA)，博闻中国(UBM)主办的，由亚洲非织造材料协会(ANFA)，美国过滤与分离协会(AFS)，欧洲非织造材料协会(EDANA)，台湾过滤与分离协会支持的“第六届亚洲过滤与分离工业展览会”“第九届中国国际过滤与分离工业展览会’于2016年12月7日至9日在上海新国际展览中心隆重举行。本次展览吸引了来自中国、日本、韩国、美国、新加坡、印度、马来西亚、意大利等国家和地区的160多家业内领先企业，带来了涵盖过滤与分离技术各领域的最新技术及产品，包括过滤材料、过滤装置及设备、分离设备、测试仪器等，展出面积达10000平方米。无论是展出面积还是参展商数量均创历届之最。

为期三天的展会吸引了来自中国、德国、英国、美国、澳大利亚、日本、韩国、马来西亚、新加坡、印度、中国香港台湾等海内外专业观众。这也凸显了业内人士对上述二个展会的高度重视和极高的参与热情。由于参观人士的专业化程度高，参展厂商的产品和技术水平高，双方都会进行高质量有成效的交流，因此双方均对本次展会表示高度的认可。

展会期间还举办了“中国国际过滤与分离论坛”“中国过滤与分离培训班”“过滤与分离技术演讲”等活动，也获得了参与者的好评。

日本不织布协会一行莅临诺邦股份参观交流

10月20日上午，日本不织布协会秘书长北洞俊明先生、顾问土谷英夫先生、中国技术市场协会非织造材料专业委员会会长向阳先生等一行24人莅临诺邦股份进行了参观，诺邦董事总经理张杰先生携接待团进行了接待并陪同参观交流，本次为日本不织布协会继2007年后再次访问诺邦。

主要行程包括报告厅欣赏宣传片，参观“上善若水”--全球非织造材料发展主题馆、8号生产线、北厂区、中心实验室，参观行程结束后双方在会议室进行了进一步交流。

欣赏了杭州城市宣传片与诺邦股份宣传片后，参观团一行在张总陪同下参观了诺邦股份“上善若水”全球非织造材料发展主题馆。本展馆是诺邦倾力打造的展示非织造材料行业文化发展与企业形象展示基地，展厅以泉、溪、湖、海四个区域，分别为序厅、企业历史发展、企业文化、行业产品展示、企业资质荣誉、销售网络、行业历史发展、产品展示七个部分。整个主题馆以“水文化”为主线、核心，寓意深远。首先，表达了水刺工艺非织造技术及万物由小而大的发展演变过程；其次，非织造材料行业的历史发展源远流长，至今延伸至各个领域，诺邦希望行业未来拥有无限广阔发展前景；最后，诺邦会秉承“让源于自然的每一根纤维回归天更蓝、水更清的世界”的企业使命，为做一个极具责任感的环保型企业而不断努力。

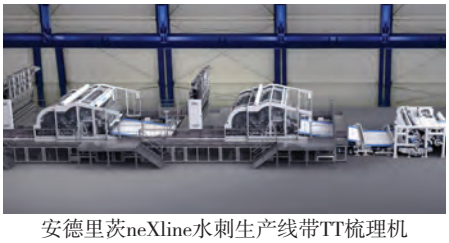
代表团一行对主题馆所呈现的内容表现出极大兴趣，张总及讲解员对各代表饶有兴趣的不断咨询进行了仔细讲解回答，尤其在诺邦产品展示与非织造材料行业历史发展两个区域驻足欣赏，高度赞誉！

本着坦承公开的交流原则，诺邦向本次来访参观团开放了《SANLYZOX-散立冲》高端护理环保材料生产线--8号线，并带代表团近距离参观了8号线的生产与品质管理；代表团一行人随后参观了诺邦配备30多套实验设备的中心实验室，该实验室的发展目标和宗旨是“用最精良的仪器设备，以严谨高效的工作和服务质量为国内外客户提供客观、公正、准确、高效的测试评价服务”。

在双方交流会议上，张总代表诺邦再次对日本不织布协会代表团的来访参观表示热烈欢迎，并对诺邦股份与老板集团的发展历史、规模、产品应用领域等做了逐一介绍。代表团对诺邦每条生产线的特点及产品应用领域、生产线的产品质量管理方法及标准以及目前使用的原料种类等内容进行了探讨与询问，张总对提出的问题都做出了详尽解答。

会议最后，协会秘书长北洞俊明先生和顾

行业信息



安德里茨neXline水刺生产线带TT梳理机

问土谷英夫先生也分别做了代表发言，他们对此次参观与诺邦的热情接待表示由衷的感谢，并对诺邦近年来的发展变化表示惊叹！张总也对诺邦未来发展方向和愿景做了表态，同时，希望能进一步加强与日本同行的合作交流！

日本不织布协会一行莅临精发实业公司参观交流

10月20日下午，日本不织布协会秘书长北洞俊明先生、顾问土谷英夫先生、中国技术市场协会非织造材料专业委员会会长向阳先生等一行24人莅临精发实业进行了参观，精发董事副总经理沈根珠先生携接待团进行了接待并陪同参观交流。

安德里茨供给福建南纺纺织有限公司2条水刺生产线

安德里茨供给福建南纺纺织有限公司2条水刺生产线，其中包括安德里茨在中国售出的第一台TT梳理机

格拉茨，2016年9月讯，安德里茨无纺布，作为国际技术集团安德里茨的一部分，已接到福建南纺纺织有限公司2个水刺生产线订单。

过去，南纺已投资了3条安德里茨水刺生产线，先是2002年整合了安德里茨的纤网形成，然后是在2005年和2006年。

南纺将再次信赖安德里茨技术，新添2条neXline水刺无纺布生产线，设备将置于南平市（福建省）的新厂内。

第1条线能够处理100%棉纤，设备配置是1 eXcelle梳理机，1 Dynamic 交叉铺网机，1 牵伸机以及1 eXcelle梳理机，它包括了ProDyn和Isolayer的功能，以提高纤网匀整度并因此而节约原材料。有关纤网的粘合，安德里茨将提供它的Jetlace Avantage水刺机。最终用于面膜和擦布的生产。

第2条生产线是高速水刺生产线，配置用于处理黏胶和聚酯纤维。它有2台TT梳理机用于纤网形成以及1台Jetlace Essentiel 用于水刺。在美国和欧洲，TT梳理机已经成为高速生产线的新标准，有30多台设备已运行5年以上，且平均每条生产线产能达到20000吨/年。南纺是第一次在中国安装TT梳理机。最终用途为擦布和婴儿湿巾。这两条生产线将在2017年第一季度交货。

2条新的无纺布生产线将配备安德里茨最前沿创新技术，使南纺能生产高质量无纺布响应全球市场。

三井化学将扩建Sunrex非织造设施

日本三井化学公司将扩建其位于三重县四日市的全资子公司Sunrex工业有限公司的生产设施，以应对高端纸尿裤不断增长的市场需求。该设施预计将使用专利技术，生产具有优异的弹性和延伸性的优质高性能非织造材料。

在他们的中期商业计划中，该公司将专注于卫生保健业务，这是除汽车和食品包装领域之外的一个可驱动增长的目标业务领域。作为卫生保健业务一部分的非织造业务，它的目标在日本和亚洲其他地区不断增长的市场中为高端纸尿裤生产商提供产品，进一步扩展卫生保健业务。

新设施将生产超柔软和延展性的高性能非织造材料。三井化学公司利用最先进的专利技术，改进传统的纺粘生产方法，生产具有优异柔韧性、延展性，并伴随卓越舒适性的产品。此次扩建将有助于高端纸尿裤市场中高性能非织造材料的分销，提高产品的质量和扩大其应用领域。Sunrex设施将于2017年11月完成扩建，其有望使三井化学的全球产能达到每年115000吨。
(资源来自: “www.technical textile.net”)

东丽在韩国新增了一条纺粘生产线

1.8万吨新增产能将满足亚洲卫生应用的需求

东丽公司将在韩国安装一条产能为1.8万吨的聚丙烯纺粘非织造材料生产线。这条高性能的生产线将被安置在Gumi的新工厂里面。预计将在2018年的4月开始运行。

在韩国，东丽公司已经多年没有添加新的聚丙烯纺粘生产线了。报告显示韩国东丽聚丙烯纺粘非织造材料产量为4.3万吨。同期该公司转而专注于在亚洲其他地区的产能扩建，尤其在中国目前正在建第四条线，同时在印度尼西亚已运行了两条纺粘生产线。

行业信息

东丽正按中期管理项目（Medium-Term Management Program）在亚洲投资，项目AP-2016于2014财政年度启动，这个项目大力推行四个全集团项目，旨在增长领域扩大规模，同时增加国家和区域的竞争力。决定增加纺粘非织造布产能的项目作为在亚洲、美洲和一些新兴国家拓展业务（AE-II）项目的一部分，为公司能够从亚洲、美洲和一些新兴国家获得利益，预期这些地区将有非常显著的经济增长。Life Innovation Business Expansion（LI）项目要求提高医疗质量，缓解医疗机构的负担，促进健康长寿。东丽集团将在那些增长的领域积极推进业务的扩张，以及在各个国家和地区的影响力，力争持续增长。

在东盟国家、印度和中国，用于婴幼儿的纸尿裤需求正在迅速的增加，在经济高速增长和国民收入增加的背景下，这些国家的人们的生活方式得到改善。特别是在中国，这个最大的市场，随着人们对安全产品需求的增加，进口日本和韩国高端产品的需求量也变的越来越大。一些主要生产卫生产品的跨国公司已经宣布将在亚洲扩大其生产规模。鉴于这种情况，作为纸尿裤的主要原料，预计聚丙烯纺粘非织造布的需求每年将以9%的速度增长，2015年的年产量达到50万吨，这反应了在一些发达国家老年人和在新兴国家婴幼儿在这方面的需求。因此，根据东丽的预计，原材料将会出现供不应求的情况。

(资料来源: "www.nonwovens-industry.com")

延锋在南卡罗来纳州的业务开展

汽车零部件供应商在南卡罗来纳州投资了7100万美元

世界上最大的汽车内饰件供应商延锋汽车内饰正在南卡罗来纳州劳伦斯开展业务。这项新的扩展有望带来7100万美元的新资本投入，并在该地区创造35个新岗位。

这家总部设在中国上海的公司将向宝马提供内饰部件，包括汽车制造商多个型号的车门面板、仪表板和副仪表板。

延锋汽车内饰是一家仪表板、座舱系统、车门面板、副仪表板和顶板的供应商，其在17个国家拥有超过100个制造和技术中心，在全球有员工28,000名。延锋汽车内饰公司成立于2015年，是上海汽车集团有限公司（上海汽车）的下属华誉汽车系统有限公司（HASCO）的全资子公司延锋汽车饰件系统有限公司和全球多实业公司江森自控的合资企业。

该公司刚完成了对Faurecia's Fountain Inn在南卡罗来纳州生产厂的收购，包括其现有的365000平方英尺的厂房和目前的员工。

延锋汽车内饰将扩建十万平方英尺厂房，以适应未来新业务的需求。

(资料来源: "www.nonwovens-industry.com")

奥斯龙将投资肯塔基州的工厂

投资2500万美元增强其过滤产品组合

奥斯龙—全球过滤材料领先者，为提高发动机和工业过滤产品产能，将投资位于肯塔基州麦迪逊维尔的工厂，总的投资大约为2300万欧元（2520万美元）并将在2018年的上半年完成。

过滤和性能部门的执行副总裁Fulvio Capussotti说：“奥斯龙是一家全球领先的发动机和工业过滤材料的生产商，且在四大洲都有生产基地。作为对于我们关键过滤材料客户的一个承诺，我们正在用最先进的设备扩大我们的过滤产品组合。这是加强我们北美和南美的重要一步。”

(资料来源: "www.nonwovens-industry.com")

印度开发了基于纳米纤维的卫生巾

海德拉巴印度理工学院研发出不用高吸水树脂的护垫

据新印度快报的一则报道称，海德拉巴印度理工学院已经开发了一种基于纳米纤维的卫生巾。

Chandrasekhar Sharma教授，是该学院化学工程系教师，他团队的学生开发了一种不用高吸水树脂的卫生巾，从而确保女性在使用这种纳米卫生巾时不会面临任何的副作用。

“经期卫生对于每位女性都是一个重要的问题，因为经期卫生不良增加了生殖道感染的脆弱性，”Sharma教授说，“卫生巾是女性最常用的一次性吸收性卫生产品。然而，在目前商业化卫生巾里有一些有害化学物质存在，如高吸水树脂，它是以石

行业信息

油为原料的产品。因为这些产品会引发女性健康问题，所以我们决定提出一个安全的选择。”

团队使用静电纺醋酸纤维素纳米纤维作为卫生巾吸水芯材。报道称，这些护垫在没有影响其性能的情况下，消除了目前销售卫生巾中高吸水树脂的非生物降解性，且具有更好的吸收性和舒适性。

“以纳米纤维为原料的女性卫生产品为女性卫生提供了一种安全选择，因为长期使用市售产品可能会导致中毒性休克综合征与卵巢癌，”Sharma教授说，“这项工作的主要焦点是最小化高吸水树脂在产品中的使用。为此，我们打算制造以纤维素为原料的纳米纤维，并建议把它们作为吸水芯材来使用。”
(资料来源:“www.nonwovens-industry.com”)

Techmer将在墨西哥扩展其业务

增加投资来满足拉美地区客户的需求

Techmer PM将在墨西哥开设生产工厂，为墨西哥及拉美地区越来越多的客户提供本地服务。

该工厂预计于2017年下半年投入运行，届时将有足够的产能满足墨西哥以及重要的拉美市场的需求。同时能够使Techmer公司支持在墨西哥及其他战略增长地区的汽车公司扩展的需求。

Techmer PM董事长Ryan Howley兴奋地说：“Techmer PM作为出口公司，过去几年在墨西哥已经具有一定的影响力。不管是现有客户关系还是在当地培育新的商业机遇，我们对未来持有非常乐观的态度。”

墨西哥扩张项目将由Guillermo Quijano总经理负责实施，其刚刚被聘任为负责拉美地区运营总经理。Quijano在拉美地区拥有20多年的材料研发经验，将负责建立墨西哥公司并监督墨西哥和拉美地区的运营。他曾经在墨西哥成功建立过一个混合工厂，并且作为总经理领导一个团队。

“Guillermo具有专业的背景，这使得我们乐于合作并扩展新的商业范围，力争将墨西哥地区的经营打造成一流的水平，”Howley信心满满地说。

关于选址、设备以及新聘用的详细信息稍晚些时候将按计划予以公告。
(资料来源:“www.nonwovens-industry.com”)

王子将竞争缅甸纸尿裤市场

Nenia品牌在当地34个网点销售

据报道王子控股公司已经进入缅甸的纸尿裤市场，加入竞争者的行列，如日本的尤妮佳和美国的金佰利。王子从日本和马来西亚进口纸尿裤到缅甸，在34个City Mart Holding销售网点以Nenia品牌销售，City Mart Holding是缅甸最大的零售商。这家东京公司计划通过扩大销售网络来增加收入，包括当地其他大型零售商。

通过高质量来吸引迅速成长起来的城市中产阶级，王子的目标是两年内获取缅甸10%以上的纸尿裤市场份额。

自2013年在缅甸建立分支机构以来，王子已经在东南亚国家销售包装材料。同时在当地建立了产品生产企业，2015年8月投产了一家纸板生产厂和一家木材加工厂，一家与当地公司及Sumitomo Forestry合资成立的企业，4月在东部地区孟邦州成立。
(资料来源:“www.nonwovens-industry.com”)

阿波制纸提供再生材料生产的垫子

产品质量和用新碳纤维制造的一样

日本非织造生产商阿波制纸已经开始供应一款非织造垫子，该垫子用回收的碳纤维及合成纤维制成。该公司声称这款产品采用造纸和热粘合工艺组合而成，其质量和新碳纤维制造的产品一样。
(资料来源:“www.nonwovens-industry.com”)

H.B. Fuller印度尼西亚工厂破土动工

新工厂将生产卫生行业用粘合剂

H.B. Fuller在印度尼西亚的泗水生产工厂已经破土动工。这家未来的生产工厂将加强H.B. Fuller在亚太地区的网络覆盖，并能补充产品和技术支持，目前，印度尼西亚的产品及服务由分布在中国、菲律宾、马来西亚和澳大利亚的生产设备来承担。

（>>>下转36页）

市场动态

欧文斯科宁在北卡罗莱纳州开设玻纤非织造布工厂

该投资将支持公司在北美建筑领域市场的增长

欧文斯科宁公司致力于在北卡罗来纳州的加斯托尼亚开设一个新的高新技术制造工厂，这将有助于公司参与日益增长的玻璃纤维非织造市场，尤其是北美建筑领域。

“我们在加斯托尼亚的投资涵盖了最先进的玻纤薄毡的制造技术，为不同的客户提供各种各样产品的能力，拥有一个可持续发展的历程和训练有素的员工队伍，”北美欧文斯科宁公司的非织造部总经理苏曼•拉哈说道。“我们有通过引进玻纤产品来打开市场的传统。在加斯托尼亚的工厂将继续发扬这一传统，用我们的玻纤薄毡打开建材市场。”

“加斯托尼亚工厂和商务中心的正式引入，表明了我们对客户的成长和成功的承诺。我们再次感谢政府和社会各界伙伴，在过去三年，为我们提供的创造一个真正的世界级运营商的支持，”他补充道。

通过先进自动化和计算机技术，加斯托尼亚工厂生产出一种薄片状玻纤增强材料，称为薄毡，应用于建筑行业中，如地毯和天花板、乙烯基地板和石膏墙板以及汽车领域。加斯托尼亚工厂生产的Sustaina薄毡产品无甲醛粘合剂，因而可以满足客户在生物基产品上越来越浓厚的兴趣。

欧文斯科宁公司的玻璃纤维终端应用产品有4万多种，涉及建筑、风能、水利基础设施、工业、交通运输、消费品和航空航天/国防领域。

(资料来源:“www.nonwovens-industry.com”)

报告称K-C升级位于新加坡的尿布和擦拭巾生产线

新生产线的特色—自动化技术

亚洲新闻频道的一份报道称：位于新加坡的金佰利大士厂，针对好奇婴儿湿巾和纸尿裤的新生产线已经运行。

数百万美元的投资使金佰利公司在新加坡的总投资接近3亿美元。1998年公司首次在新加坡设立办事处，并于2012年在新加坡成立了东盟办公室和亚太总部。

据报道，用于生产好奇牌婴儿湿巾和纸尿裤的新生产线拥有先进的自动化技术，产品将出口到11个国家和地区，包括中国和澳大利亚。亚太是金佰利国际财政收入最大的地区。

在谈及新建成的生产线时，贸易和工业部长S. Iswaran说道：制造业仍然是新加坡经济的重要支柱，对于新加坡，先进制造业已被确定为新加坡经济增长的一个的关键点。

“我们也将继续与业界公司一起培养和储备我们的员工，当面对由制造技术的改革，高新技术的采用出现的新机遇时，我们的员工也可以胜任其中”，他补充道。

金佰利将培训其员工来操控新的生产线。这包括诸如生产线的运营和维修，系统设计，包装体系及质量控制和监测。

在新加坡，金佰利公司拥有员工约250人，其中约70％是本地人。目前将近150人在大士工厂工作。

(资料来源:“www.nonwovens-industry.com”)

Wet Ones举办返校大赛

擦手巾品牌Wet Ones鼓励父母抓拍孩子们的脏乱瞬间

据对Wet Ones擦手巾的一项研究分析，91％的妈妈表示，他们曾禁止了孩子参加某个他们认为很脏乱的活动。为了帮助父母迎接这脏乱的返校季，该品牌已与Siri Daly合作举行快乐回厨房活动，因为在回厨房之前，可以使用Wet Ones擦手巾清洁满是脏乱的双手！

“作为一个母亲和美食博主，我喜欢我的孩子们一起做饭，但有时我觉得我错过了一些和他们在一起的精彩时刻，因为和他们在一起时，我很关心清洁问题”，Siri Daly说，“即使弄得一团糟后让我的孩子去洗手都要一番斗争！当肥皂和水不易获取时，使用2合1功能的Wet Ones抗菌擦手巾来擦去污垢和细菌是一种便利的方法。”

市场动态

“我们知道，尽管大多数的妈妈都像Siri一样，会尽量避免脏乱的时刻，同时84％的妈妈也承认，尽管会弄得一团糟，烹饪仍是他们可以与孩子做的最好玩的活动之一，”个人护理用品公司（EPC）的Wet Ones品牌经理Christina Saikus说，“我们希望通过小家伙制作的杂乱的PB&J食谱为家庭聚餐准备的饭盒和牛肉汉堡，来鼓励家长享受家庭回忆，因为Wet Ones擦手巾一直与你相伴。”

为了庆祝这个返校季的脏乱时光，Wet Ones擦手巾推出寻找美国最脏乱孩子的竞赛，准备参赛的父母需要将他们孩子在2岁到17岁时最脏乱时的照片，使用标签 #WishIHadaWetOnes & #contest发布“Twitter”或“Instagram”上，也可以将照片上传至www.wishihadawetones.com。特等奖得主将获得5,000美元另加一年内免费使用Wet Ones擦手巾。五名一等奖获得者分别获得2,500美元的Visa充值卡。请参阅更多参赛细节。

当肥皂和水不易得时，Wet Ones抗菌擦手巾以方便的2合1方式来消灭污垢和脏乱，并杀死99.99％病菌的。特定配方的Wet Ones擦手巾针对顽固的污垢和病菌，但对皮肤温和。Wet Ones擦手巾具有低致敏性，并含有芦荟和羊毛脂，很容易亲和皮肤，即使对于最柔嫩的小手。现提供的应用新型保湿密封技术的Wet Ones擦手巾20包旅游套装，经证实，该技术有助于湿巾保持15％以上的水分，确保他们一直保持新鲜，所以你将永远拥有便捷的方式来消灭污垢和脏乱。

(资料来源:“www.nonwovens-industry.com”)

东洋纺与荷兰生物风险公司就合作生产100%生物基树脂达成一致，该树脂的阻隔性能超过聚酯

东洋纺和荷兰生物风险公司Avantium已经达成协议，根据该协议，Toyobo将制造聚乙烯呋喃酸酯（PEF），一种100％的生物基树脂，具有类似于聚对苯二甲酸乙二醇酯（PET）的性能，但是其具有比PET更高的阻隔性能。

由PEF制成的薄膜和瓶子的氧气阻隔效率是PET的10倍，水蒸汽阻隔效率是其2倍，这为PEF材料的使用开辟了新的道路。东洋纺也将计划生产PEF薄膜。

从事聚合的岩国工厂

最先进的技术

PEF的生产由Avantium公司提供技术支持。它是通过从生物基碳水化合物（糖）制得的呋喃二甲酸（FDCA）和同样也是生物基的乙二醇两种单体聚合而成。常规的PET通过对苯二甲酸（PTA）和乙二醇聚合制备。

目前市场上的大多数PET产品由石油基的PTA制成，因此不是100％生物基。随着对纯生物基PTA的研究取得进展，PDCA来源于碳水化合物，结构类似PTA，Avantium成功地开发出高效生产PDCA的技术，从而开启了生产100％生物基树脂的大门。

在Avantium吸引了各方的广泛关注的时候。东洋纺公司以其在该领域拥有的独特先进技术及生产能力，获得了和荷兰Avantium公司的合作协议。这两家公司以前也在PEF聚合物方面有过交流。

具有高阻隔性能的生物基材料

PEF膜是纯生物基材料，因为它们由生物基碳水化合物PDCA和乙二醇（也是生物基的）制成。与PET相比，该材料在阻隔氧气方面效率高10倍，并且在阻止水蒸汽方面效率较PET提高两倍。

东洋纺雄心勃勃的市场战略

目前，100％生物基的PET产品还没有商业化生产。东洋纺计划将PEF作为一种在阻隔性能方面超越PET的新材料推向市场。与三井公司（总部设在东京都千代田区）合作。三井公司将出售PEF树脂和薄膜。东洋纺计划从2017年起提供样品。

东洋纺已经生产了一些生物基树脂产品，包括高熔点生物质聚酰胺“VYLOAMIDE™”，无定形聚乳酸树脂“VYLOECOL™”和部分生物基包装膜“BIOPRANA™”。公司计划以PEF来加大生物基树脂产品的生产，并将其作为主要的高功能类产品扩大生产。

关于 Avantium公司

Avantium公司总部位于荷兰阿姆斯特丹，是一家在可再生资源领域内先进的化学技术公司。该公司由首席执行官Tom van

市场动态

Aken领导。
(资料来源: "www.nonwovens-industry.com")

GDM公司引入智能制造预设生产线

B8-W Grey改善婴儿纸尿裤生产的灵活性

GDM曾提出快速解决方案的承诺，B8-W Grey正是基于客户所想，成为下一代纸尿裤生产设备的解决方案。B8-W Grey的设计理念是改善纸尿裤生产的灵活性，在现有生产参数下，最小化尺寸改变及原材料参数调整。虽然该公司所有的柔韧性能由其取得的专利Linear Motion and E-cams技术所代表，但这种最新的生产线毫无疑问是GDM公司最高水平的象征，据生产商反馈："B8-W Grey的目标就是优化客户的生产工序，使得生产配方、材料以及尺寸调整时间缩至最短。
(资料来源: "www.nonwovens-industry.com")

Corbion推出Luminy品牌

完整的产品组合包括高温和标准的聚乳酸树脂

Corbion推出其全部聚乳酸树脂组合，将其命名为一个新的品牌Luminy。这个品牌喻意该聚乳酸具有独创、明亮的性质，反应其天然、可再生的特性。璀璨的阳光为生活提供了这一新的塑料原料。这个产品组合包括各种分子量的高温和标准聚乳酸树脂，适应最常见的塑料生产技术。

Corbion应用于高性能领域的高温聚乳酸材料，Nager-IT将其应用于新生物塑料鼠标，Supla和Kuender将其应用于众所周知的电脑生物塑料触摸屏上。同时，Roechling和Plantura将高性能聚乳酸塑料应用于引擎罩和汽车内饰件，Synbra应用于BioFoam冲浪板。这些应用证明了高温聚乳酸材料的性能潜力。

在泰国，更将聚乳酸生物塑料开发制成根茎保护容器，提高橡胶树的农业及环保效率。欧洲生物塑料会议提名此项应用为生物塑料奖，该会议即将在德国柏林举行。

此外，BASF和Corbion Purac合资成立了Corbion & Succinity公司，它们正在推进聚乳酸和PBS树脂（聚丁二酸丁二醇酯）化合的生物高聚物，具高度耐温的同时兼具机械特性、生物降解性及可再生的优点。聚乳酸和PBS树脂的混合性能具有各种良好的应用前景，比如食物餐盘、食品包装及咖啡胶囊。
(资料来源: "www.nonwovens-industry.com")

爱生雅将退出墨西哥尿裤市场

将继续致力于该国女性卫生及成人失禁产品

在目标市场缺乏盈利能力，爱生雅已宣布将退出墨西哥婴儿尿裤市场。该公司将继续聚焦于引领墨西哥的女性卫生用品、成人失禁产品以及卫生纸市场，根据2015年的销售数据显示，墨西哥是该公司的八大市场之一。

停业总支出约1.7亿克朗（约合2000万美元）。去年爱生雅在墨西哥的婴儿尿裤销售额为3.4亿克朗。

爱生雅公司步2015年宝洁公司在墨西哥撤除"帮宝适"的后尘。然而，根据Euromonitor International研究团队的研究显示，其竞争对手金佰利在该国取得成功，以70%的份额领先。墨西哥婴儿尿裤的销量每年按2%的增速增长。
(资料来源: "www.nonwovens-industry.com")

尤妮佳改变在华策略

公司计划在日本加大生产，致力于在线零售业务

根据日经网的报道，尤妮佳正试图通过日本生产的出口纸尿裤来收复中国市场业务，而不是销售当地生产的产品。作为最早进入中国市场的竞争者之一，尤妮佳目前运营着5家在华工厂，但其业务在过去两年内摇摆不定。

公司高管正在叹息其对中国消费者需求的误解给公司带来了麻烦。

其中一个失误就是将经济适用品牌"妈咪宝贝"纸尿裤，而不是高端品牌Moony，作为在华销售的主要产品。该公司同时选择大型的超市以及其他传统的场所作为销售渠道。该策略运行良好，直到客户开始寻找更高质量品牌的时候，情况出现了转变，此时客户转而采用网购的方式。

"市场转变的信号出现在2013年，"首席运营官Takahisa Takahara回忆道："我们当时应该早作反应。"

市场动态

尤妮佳的亚洲业务在2013年时曾获得13-15%的利润率。但2014年开始下滑，到2016年上半年利润率只剩6.9%，期间在中国的纸尿裤暴跌，当期预计利润率为10.2%。库存增加，出货量减少，成本提高。预计年底之前能够控制住库存量。

相较于本地生产的产品，日本制造的纸尿裤因其安全、可靠而备受中国消费者喜欢。

针对这些问题，尤妮佳正试图加大将日本生产的纸尿裤出口到中国。将通过在福冈县的Kanda小镇建设一个节能、高效的智能制造工厂来部分实现，预计2018年完成。预期能大幅增加公司Moony纸尿裤的产量，不仅能出口到中国，也能出口到其他亚洲国家。

尤妮佳也将增加中国制造及日本制造的拉拉纸尿裤的销售，以满足消费需求的改变，同时支持电子商务的发展，增加相关市场的投入。中国纸尿裤业务预计2017年能够带来盈利。

花王的竞争对手在日本生产中国版纸尿裤已经4年。

(资料来源: "www.nonwovens-industry.com")

BFI提高特尼尔工厂的产能

3000万欧元的投资将扩展Meraklon特种纤维生产，供应其卫生及个人护理的客户

欧洲的聚丙烯短纤维供应商Beaulieu Fibres International (B.F.I.)宣布了一项3000万欧元的投资项目，该投资用以扩大Merkalon在意大利特尔尼工厂的产能，用新的双组份产品来扩展Meraklon特种纤维的产品组成。

该投资的核心是一条新的卫生纤维生产线，装备了最新的技术、最先进的长程纺丝技术，满足市场上对高质量聚烯烃纤维持续增长的需求。其将安装于一栋新的建筑中，该建筑已为进一步的扩建预留了空间，该项目位于特尔尼工厂。B.F.I.预计安装工程于2017年年中开始。

最新的卫生纤维生产线使B.F.I.首次将PE/PET和PP/PET双组份纤维加入到Meraklon产品系列中。这是重要的一步，将帮助全世界B.F.I.卫生及个人护理领域的客户有兴趣将这些纤维应用到非织造产品上，如婴儿纸尿裤、成人尿失禁产品、女性护理及擦拭产品。

采用双组份纤维的非织造产品具有更柔软、更蓬松和较好的弹性。纤维芯层PET的高熔融温度使得生产过程中粘合范围较宽。尤其是PE/PET双组份纤维，更符合市场对更柔软、更蓬松的要求。

B.F.I.的新设备也能生产单组分PP纤维，扩展特尔尼现有的纤维产能。B.F.I.能够生产三叶型以及双组份PE/PP纤维，满足卫生领域的客户需求。B.F.I.公司工程产品副总裁Karena Cancilleri评价道：“扩展的产能对于Meraklon特尔尼工厂而言是关键的一步，能够使其成为一个真正的优良卫生产品中心。在2015年的基础上，扩展的产能加强了我们单组分三叶型纤维以及PE/PP双组份纤维的产能，满足客户不断增长的需求。在特尔尼新增的这条生产线能够使我们为客户提供产品更具灵活性，提供的产品范围更加广泛。”

(资料来源: "www.nonwovens-industry.com")

（<<<上接32页）

“这家未来工厂将成为利用我们的全球影响力和技术知识，授权当地专家的卓越标杆，”H.B. Fulle董事长及首席运营官Jim Owens说：“今天，我们打造了一个重要的里程碑，我们承诺将价值传递给我们在亚洲的客户，加强我们的竞争力，并且继续在产能扩张上投资来支持我们长期增长的策略。”

该公司计划生产热熔及水基粘合剂产品，于2016年二季度开始。在该地区增加的产能将满足当地消费者的需求，并满足东南亚，尤其是印度尼西亚市场强劲增长的需求。

有了这家工厂，H.B. Fuller将为卫生用品、包装、木制品、过滤器、产品组装、容器标签以及其他耐用组装产业提供粘合剂解决方案。

(资料来源: "www.nonwovens-industry.com")

市场趋势

湿法预计将增长5.9%

在可持续发展领域的增长

湿法非织造布，虽然是最小的非织造布工艺类型，但仍然保持着重要的市场份额，且在一些市场有增长，特别是擦拭巾。具有得天独厚的地位，可以解决全球对可持续产品日益增长的需求，Smithers Pira的新报道称，到2021年，湿法非织造布预估为一个9.826亿美元的市场价值，预计年增长率为5.9%。

湿法非织造布可以用大量的低成本、可持续的木浆为原料的能力，使得它成为一种极少数的可以生产既经济又可生物降解产品的非织造工艺。可以生物降解的即弃性、堆肥性甚至是可散性都是可能实现的，并且只需对湿法工艺稍微做些自然的延伸。

该报告的作者Philip Mango说，湿法成网工艺具有广泛的适用能力，可以处理各种纤维类型，从玻璃纤维和碳纤维到棉花和马尼拉麻。这种功能特性为其提供了成本和性能方面的机会。

湿法成网非织造布覆盖了许多最终用途，包括工作和危险环境服装、衬里、鞋垫和合成皮革制品、涂层基布及家庭应用等。这些发现让湿法成网进入最大的终端用途市场，如墙面涂料和液体过滤。此外，使用短切玻璃纤维、碳纤维和其他特种纤维使湿法成网产品进入更新的专业市场，如电池隔膜和电子应用等。

湿法非织造布现在略偏重于耐用性的最终用途，大约55%-62%量和产值被耐用性的最终用途所消费。在2016年，作为一次性用途的占湿法成网的44.9%。

湿法成网非织造布不断获得可持续的细分市场，湿法成网非织造布偏重于使用可持续原材料如木浆等，是其主要的积极因素。更多的玻璃纤维非织造材料包含在非织造布的定义里，增加了预估消费量。最终的结果是，湿法非织造布在继续成长并且将继续适度增长。

对湿法非织造布到2021年未来的预测，是基于初步和进一步研究的结合得出的。初步的研究主要包括采访整个织造和非织造布供应链的市场、销售、生产及产品开发的关键参与者。采访关键参与者包括从生产商和原材料供应商以及主要工艺设备供应商以及行业内的专家顾问。进一步的研究包括从技术文献、报告、论文、会议论文集，公司信息和其他贸易、商业或政府来源获得的信息。

(资料来源: "www.nonwovens-industry.com")

以全球和中国高吸水树脂产业为重点的报告

从2016年到2020年，中国高吸水树脂的消耗量预计将以每年20%的速度增长

《研究与市场》宣布了"全球及中国高吸水性树脂（SAP）的行业报告，2016-2020年"。该报告是其另外附加。

高吸水性树脂（SAP）是生产一次性卫生产品如婴儿纸尿裤、女性卫生产品和成人失禁产品的关键原材料。SAP具有超吸水能力。

目前，全球纸尿裤市场正在经历快速的发展，年平均增长率超过15%。2015年，全球SAP消耗量同比增长8%，达到230万吨。预计在2016年至2020年的消费量将以年复合增长率7.8%增长，到2020年预计为348万吨。

2015年底，全球SAP的产能达到每年348.9万吨，较上年同期增长了12%。中国为全球产能贡献了最大的份额，占总数的30.5%。

中国的SAP在过去的两年中以惊人的速度发展，2015年的消耗上升21.3%，达到38.2万吨。然而，随着二胎政策的出台，特别是由一次性卫生用品市场快速发展的驱动，从2016年到2020年，中国的SAP消耗量预计会以20%的年平均年增长率增长，到2020年会达到102万吨。

(资料来源: "www.nonwovens-industry.com")

聚焦土工布

全球非织造土工布生产商在技术上持续投资

土工布是全球土木工程和农业改良应用的一个重要组成部分。非织造土工布应用于公路和铁路建设、排水系统、过滤、土体加固、土壤分离等。据报道，2013年，非

市场趋势

织造布占据了土工布市场的主导地位（相对于机织和针织材料），大约为全球销量的65%。

由于亚太、中东和拉丁美洲等新兴市场的全球基础设施项目，以及政府政策和环境法规，土工布的需求预计持续增长。根据最近的市场研究，到2019年，预计土工布的市场将达86亿美元，2014年至2019年，年复合增长率为10.59%。调查结果显示，在2019年，按市场价值计算，预计亚太地区将占主导地位。

使用非织造土工布的一个优势是环境因素。根据EDANA的最新数据，每年大约生产和销售750平方公里的土工布，其中60%是用于道路建设。该协会称，如果欧盟的所有新道路都用非织造布替代砾石等其他材料，这相当于节省680万吨二氧化碳排放。“相对于砾石，非织造土工布轻、薄、资源更高效，而且非织造土工织物给用户提供环境效益并降低成本”。

下面我们来看一下非织造土工布市场重要生产商的最新消息。

Dalco Nonwovens公司

Dalco Nonwovens公司是一家针刺非织造布的生产厂家，位于美国北卡罗来纳州科诺弗，在其全部生产能力中，土工布生产占据了最大的份额。作为一个多种市场的供应商，该公司主要关注用于排水、分离、稳定加固、过滤及其它应用的土木工程产品。此外，该公司还提供家居用品、工业、屋顶防水和汽车市场的非织造材料。

据该公司总裁马克伊万斯称，该公司最近扩大了其业务，其第四条针刺线预计将于四月开始运营。公司的四条生产线中，三条能够生产非织造土工织物。“在我们的整体业务战略中，土工布发挥着不可或缺的作用。土工布市场一直是我们的支柱业务，我们将继续寻求新的方式开展业务，”伊万斯说。

土工布的主要原材料是聚丙烯（PP），但与聚酯等其他原材料相比，PP的价格不稳定，这使原材料采购计划成为土工布市场主要影响因素。他说：“计划出最佳方式使得我们在任何季节可以成功，这对我们来说很重要。”

相比四、五年前，Dalco可以获得更多可用的海外原料，尤其是当国外几乎没有可用的PP纤维时。因此，获取聚丙烯的新渠道在一定程度上已改变了整体的采购策略。Dalco一直试图在国内买原材料以支持国内供应商，但该公司也承认为了保持市场买家的竞争力，需要寻求更低的价格。

Fibertex Nonwovens公司

丹麦奥尔堡的Fibertex Nonwovens公司是一家非织造土工布的领先生产商，提供覆盖分离、过滤、排水、防护与加固的全方位产品。该公司还生产一种消除应力的沥青罩面产品，并提供一系列的土工合成材料。

去年Fibertex Nonwovens公司增加南非Fibertex South Africa公司的股权，该公司成立于2010年，由Fibertex Nonwovens公司，发展中国家的投资基金（IFU）及南非的Safyr公司共同建立、共同拥有，通过购买Safyr公司的48.2%份额，Fibertex Nonwovens公司占股从26%增加到了74.2%，2015年3月1日生效。交易包括了投资第二先进的针刺生产线，同时收购Safyr纤维生产线，以及相应的土地和建筑物。

据Fibertex Nonwovens公司称，该交易将为Fibertex Nonwovens公司在非洲的未来发展创造重要平台。这是一个战略举措，集团首席执行官乔根•本奇•马德森看到在南非本土生产的巨大潜力。Fibertex South Africa公司已经感受到南非基础设施项目以及汽车、工业应用产品显著增长的需求。本奇•马德森说：“在南非的投资将帮助我们达到在非洲大陆市场领导者的位置”。

在描述市场的整体特征时，他说需求是好的，但他们已经看到了产能的投资过剩。在区域上，马德森认为欧洲和北美市场稳定，但仍在增长，而新兴市场都表现出了非常强劲的增长。“然而，目前价格的降低和原材料需求的减少，导致了新兴市场需求不足和增长减少，”他解释说。

市场趋势

吉事益环境公司（GSE Environmental）
吉事益环境公司总部设在得克萨斯州的休斯敦，生产各种应用于土木工程及环境保护的多功能非织造土工布。可提供不同重量和厚度的产品，以满足特定的项目要求。

据市场经理Robin Vodenlic说，吉事益土工布最常见的用途是沥青加铺层，作为柔性填料和应力吸收层，防止沥青路面反射裂缝；分离——保持相邻材料的物理分离，有助于防止工程性能的恶化；过滤——吉事益非织造土工布允许液体通过，同时防止土壤颗粒的流失；防护——土工膜衬垫在施工期间会被损坏，吉事益非织造土工布可以放在衬垫上面或下面，提供一种缓冲以保护土工膜在整个项目期间不会损伤；排水——在某些情况下，气体和蒸汽会被土工膜集聚，必须排放出来。吉事益非织造土工布可以促进气体和蒸汽的排泄。

吉事益的核心产品之一是CoalTex土工过滤材料。Vodenlic称：过滤材料具特殊设计的有效孔径结构，能够过滤非常细的土壤，且不用担忧堵塞和管道等问题。即使用于最具挑战性的环境都非常理想，如煤渣（CCPs）。事实上，由于环境保护局（EPA）新近条例的实施，我们看到了粉煤灰市场的大量增长，vodenlic解释。

“用于非常细粒土工过滤材料的设计是土工技术最艰巨的挑战之一，”她说。“CoalTex土工布是吉事益CoalDrain土工复合材料的一个组成部分，它是专门设计用于煤渣（CCPs），包括细粒粉煤灰、泥浆、细砂。大量的实验室和现场试验证明，吉事益CoalDrain土工复合材料的过滤性能达到或超过煤渣处理的设计要求。”

Mattex Geosynthetics公司
Mattex Geosynthetics公司总部设在阿联酋迪拜，Mattex Geosynthetics在沙特阿拉伯王国的一个最先进的、垂直一体化的工厂中生产非织造土工布。

销售市场营销和业务开发总监Philippe Grimmelprez说，“Mattex Geosynthetics公司使用的最佳聚合物之一仅需过一个门槛，”也就是说，直接进入该公司的原材料就在其生产场所旁边生产。“采用自己生产的高韧性纤维，Mattex能够生产在市场上最有规律、最稳定及性能适合的土工布。超现代化的生产厂房，为最佳的生产力和最佳负荷而设计，它的开始运行，使Mattex Geosynthetics有了质的飞跃。”

Mattex的一个重点区域是GCC（海湾合作委员会）市场。较低的政府预算可能对基础设施建设产生负面影响，Grimmelprez表明，这为非织造布打开了市场。“较低的政府预算迫使承包商和政府以更有效的方式来建设。土工布、土工合成材料通常允许承包商的施工更快、更好、更便宜、更环保。这给Mattex提供替代的施工方法带来巨大机遇。低质量的产品被挤出市场，质量更好的产品正在赢得市场份额，”他说。

本地采购给予GCC国家的承包商另一个优势，给Mattex一个额外的推动，因为昂贵的进口产品会失去市场份额。Grimmelprez说其在本地生产的优质产品正在取代低质量的产品——往往是些进口产品。

在该地区为承包商持续不断地提供本地材料是一个关键，该公司继续提升其土工布的性能，并且已在质量控制和研发方面大量投资。同样，该公司最近已为改善纤维、非织造布和包装生产线进行投资，格里梅普斯说。

Skaps Industries公司
位于美国路易斯安娜州雅典的Skaps Industries公司，生产土工合成材料和排水产品用于美国及国外的环保及土木工程。据市场拓展部副总裁Anurag Shah称，公司的非织造针刺土工材料采用聚丙烯或聚酯短纤维，用于分离、稳定、加固、排水、过滤及沥青加铺层。

去年，Skaps在印度当地增加了一个全新的非织造布生产线。“主要目标是覆盖中东和亚洲国家。我们还可以从印度进入欧洲市场。富余的生产能力可以用来满足我们的美国大陆的需求，”Shah说。

当比较非织造土工布与材料如砾石时，Shah说，有很多好处。“与传统材料相

市场趋势

比，非织造布相对便宜，容易得到，易于施工。它们的物理性能可以被改变从而增强性能，以满足某些特殊用途的需求。”

TenCate Geosynthetics公司

TenCate Geosynthetics公司生产全系列土木工程及环境保护用的聚丙烯非织造布。来自美国佐治亚州彭德格拉斯TenCate的消息，公司在佐治亚州的杰佛逊工厂投资并完成了一条新的针刺生产线。

营销副总裁托德安德森介绍，土工布市场竞争非常激烈，一些公司争夺份额。尽管有这种竞争，TenCate似乎看好市场走向。“建设活动驱动非织造土工布的需求，”他说。“最近联邦政府的公路项目将为业务的增长提供一个坚实的基础。住宅及商业领域的份额也很强劲。”他补充道，继续采用这些现代和创新的解决方案将有助于土工布市场的增长，而这将进一步促进材料的开发。

安德森以TenCate的Mirafi RS580i作为这些发展的例证。“新近研发的具有最佳性能的土工合成材料Mirafi RS580i是多年产品及应用开发的成果，因此被引入为公路的材料，加快建设和节省成本，同时保护环境和提供更好的道路。”

Thrace Nonwovens and Geosynthetics公司

希腊雅典的Thrace公司，为土工合成材料市场生产针刺非织造布，专门提供加固、分离、过滤、排水、防护及侵蚀控制。

据公司介绍，非织造布与机织土工布最主要的区别是在相同条件下非织造土工布更容易拉伸，让水更有效的沿土工布平面流动。

乔治•帕吉尼斯，销售和营销经理，称土工布是一个重要的市场，公司看到针刺在取代其他纺织技术。“在土工布市场，用先进的设备和工艺技术连续生产更高抗拉伸强度和轻定量的针刺非织造布产品。同时生产周期短，使针刺产品逐渐占据机织土工合成材料的市场份额。”

事实上，Thrace最近投资了一条新的针刺线，将在今年的第二季度运行，将继续提供土工布市场以及汽车、工业及床上用品等，帕吉尼斯说。

(资料来源: “www.nonwovens-industry.com”)

Bondex公司投资水刺线

新的生产线将为过滤和其他特殊应用领域提供水刺产品

Bondex公司在其现有投资组合基础上，又投资1500万美元用于水刺产品，目前的产品包括面粘合、点粘合的热轧非织造布及各种叠层与涂层产品。

这条水刺生产线的工艺技术从特吕茨勒引进，包括一个400bar的高压水刺单元，来加固前道工艺生产线喂入的纤维。这些设备将使Bondex生产的水刺产品范围更广，适合各种纤维包括聚苯硫醚纤维、间位和对位芳纶纤维、涤纶纤维、聚丙烯纤维和聚酰亚胺，其克重范围为20~600g/m²(0.5~18oz/yd²)，幅宽可达到225cm(88”)。同时还投资了各种后整理设备，如烧毛、压光、叠层、化学浸渍、热定型和分切。

Bondex公司计划为过滤市场和其他一些特殊应用领域提供水刺产品。水刺技术在空气污染控制过滤材料方面具有显见的优势，其高效的过滤性能等同于四氟乙烯覆膜滤材。过滤对策产品将用Hydrolox品牌于2016年秋季商业化销售。

Bondex公司为安德鲁工业集团的一部分，在工业过滤市场已领跑多年。过滤市场在收集效率方面尚未满足需求，通过高度工程化设计的水刺技术可解决过滤袋的耐用性。Bondex公司将不断创新，大力发展过滤领域外的高新技术材料，包括防护服、电绝缘材料和防火隔热材料。

(资料来源: “www.nonwovens-industry.com”)

Sapro公司水刺非织造布

欧洲复兴开发银行（EBRD）贷款给擦拭巾制造商用于非织造布生产

土耳其最大的湿巾生产商Sapro向欧洲复兴开发银行（EBRD）贷了300万欧元。Sapro公司由CeyhunZincirkıran和Mehmet Gündoğdu于1997年成立。

Sapro公司75%的销售输往欧洲市场，主要在欧洲大型零售连锁店销售自有品牌

市场趋势

产品。在土耳其Sapro生产湿巾的品牌为Hops。

欧洲复兴开发银行的贷款将资助Sapro启动水刺生产线的部分运营资金，以支持其湿巾业务。据该公司称，作为Sapro湿巾的主要原材料，其水刺非织造布所需成本占最终产品的一半以上。

据公司高管透露，Sapro外部采购水刺非织造布。一体化集成非织造布生产将显著降低成本，增强公司竞争力，提高国内、国外的应变能力。公司合伙人兼董事长Zincirkıran说：“在欧洲，欧洲复兴开发银行是最重要的国际金融机构。它的贡献和支持将帮助我们实现成为行业中最重要角色的目标。”

欧洲复兴开发银行的制造业和服务业主管Frederic Lucenet说：“我们对这个土耳其出口商的事迹印象深刻。我们看到了他们公司巨大的潜力，并乐意支持Sapro在土耳其和其他地方的湿巾市场继续成长。”

迄今为止，欧洲复兴开发银行在该国已对基础设施、能源、农业、工业和金融业180多个项目投入了超过70亿欧元。也调动了约170亿欧元其他来源资金的融资。Sapro还没有宣布谁将会提供其非织造布生产线。
(资料来源:“www.nonwovens-industry.com”)

Rekze实验室研发了头皮擦拭巾

为创建头发最佳生长条件设计的擦拭巾

Rekze实验室推出了世界首款头皮擦拭巾，该产品为清洁头皮而设计并能创建头发最佳的生长条件，让头发看起来变得更加稠密。这种“28头皮擦拭巾”结合了28个精选成分来治疗头发稀少和分叉，帮助头发健康生长。

“28头皮擦拭巾”以15片形式包装，便于清洁头皮，并可保持自然水分平衡，维护健康的头皮是头发再生长最佳的要素。该产品精心设计，擦拭巾维持头皮上脆弱的毛囊处于最健康的状态，让生命的每个周期都生长并维持最佳的头发。

该配方采用活性成分，健康滋养滋润头皮，从而帮助头发看起来更稠密。二氢鞘氨醇被发现能够刺激诸如蛋白质和神经酰胺等基本成分的形成，并且提高头皮的健康以及平衡头发的生命周期。另一个有助于头发再生的重要因素是芹菜苷。这是一种在多叶植物或蔬菜中发现的生物类黄酮，它能够刺激头皮周围的微循环，从而促进头发的生长。它同时也具有消炎、抗氧化、抗癌、防辐射、防腐等功效。Rekze的“28头皮擦拭巾”独特的配方中还添加了肉桂提取物，它具有抗菌、防霉、镇静的功能，蛋白生物肽能够促进细胞的新陈代谢。从非洲吊灯树果中提取的类黄酮萜烯以及迷迭香酸能够抑制5α还原酶，具有很强的抗氧化和消炎的性能。同时，擦拭巾中银杏叶的提取物能提高组织的穿透性以及细胞代谢的活性。
(资料来源:“www.nonwovens-industry.com”)

FiberVisions公司展示新一代纤维

双组份纤维和三叶型聚丙烯卫生用纤维提供柔软的表层

2016年10月24-27日在佛罗里达州奥兰多市召开的Hygienix 2016上，FiberVisions和ES FiberVisions公司将重点突出他们的新一代产品：用于热风穿透粘合技术的双组份和三叶型聚丙烯卫材用纤维。

“作为全球聚烯烃和双组份纤维业界的领导者，我们在这个领域中实践和创新已经超过30年，我们坚信柔软的面层仍然是消费者最普遍的渴求”美国FiberVisions公司区域销售经理John Wolhar说，“对于品牌拥有者和非织造材料生产商来说，FiberVisions公司是独一无二的创新合作伙伴。同时，我们也非常高兴可以在公司的非织造试验线上开发新产品。”

Wolhar继续说到：“我们将升级用于纸尿裤和女性卫生用品表层的1.5旦双组份纤维，为下一代卫生产品的用户提升液体控制和超常的柔软性。当我们的双组份纤维与三叶型单聚丙烯纤维或双组份分裂型纤维混纺时，可以显著提升非织造布的手感柔软性。此外，在开发最佳收集层结构时，通过梳理热风穿透粘合的非织造布增加的空隙体积可改善尿裤的液体控制体系”。
(资料来源:“www.nonwovens-industry.com”)

市场趋势

东丽合并电池隔膜业务

电池隔膜业务是公司绿色创新工程的重要部分

东丽公司做出了一个决定，于2017年4月1日完成合并东丽电池隔膜公司，一家全资控股子公司，该公司专门生产销售用于锂离子蓄电池的隔膜。这个合并是一个全资子公司简单合并，因此很多公告的事项以及内容就省略掉了。

东丽公司决定合并东丽电池隔膜公司，从而强化该公司在锂离子蓄电池隔膜产业上的地位。锂离子蓄电池隔膜产业是绿色创新产业扩张项目的重要业务之一，是东丽公司强力推动并转型的可持续循环经济产业。公司将加强技术开发，并利用东丽集团整体实力的杠杆效应进行产业的扩张，和其他新能源业务共同发展。

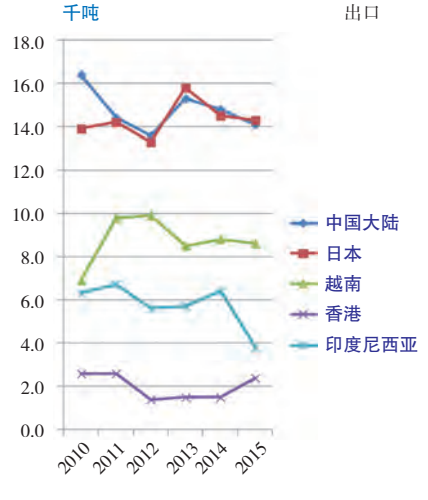
签字仪式和批准该合并预计在2016年12月份完成。

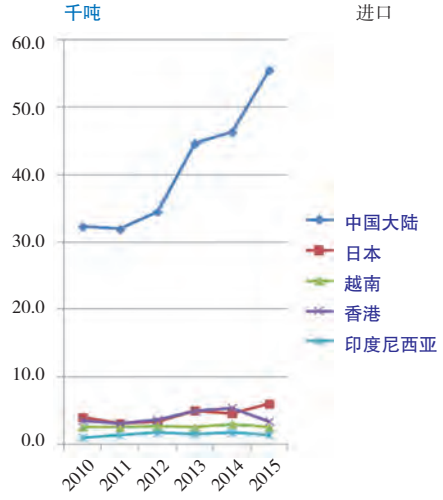
(资料来源: "www.nonwovens-industry.com")

（<<<上接43页）

韩国进出口量最大的5个国家和地区

资料来源：韩国非织造工业协会





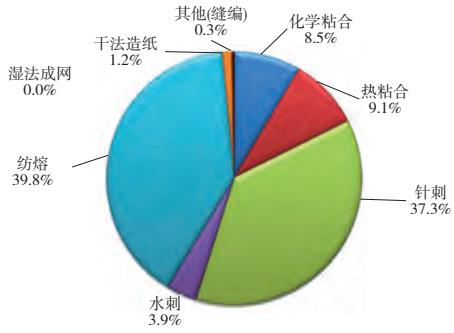
韩国非织造材料工业

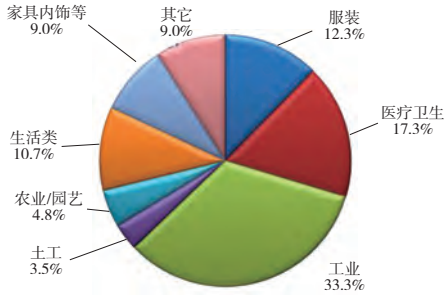
韩国非织造材料产量 (2008－2015)

资料来源：韩国非织造材料同业公会

	2008	2009	2010	2011	2012	2013	2014	2015
千吨	214.8	220.2	224.9	233.2	226.2	217.1	221.3	216.2
百万美元	827.0	847.0	865.0	897.8	872.0	837.1	853.1	833.2
美元/公斤	3.85	3.85	3.85	3.85	3.85	3.86	3.85	3.85

按工艺和应用分类的非织造材料产量 (2015) (216.2千吨)





韩国非织造材料进出口情况（2010－2015）

		2010	2011	2012	2013	2014	2015
千吨	出口	83.3	78.9	77.5	79.8	77.8	70.4
	进口	48.9	48.1	50.7	63.8	80.5	91.5
百万美元	出口	348.4	397.9	387.8	397.5	404.4	400.4
	进口	212.7	248.7	250.7	281.6	334.0	344.0
美元/公斤	出口	4.18	5.04	5.00	4.98	5.20	5.69
	进口	4.35	5.17	4.94	4.41	4.15	3.76

（>>>下转42页）

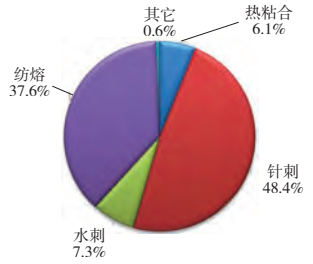
印度尼西亚非织造材料工业

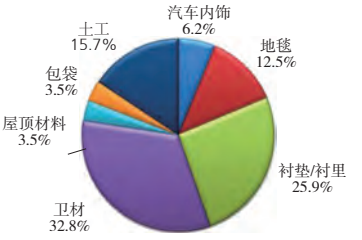
印度尼西亚非织造材料产量 (2011 – 2015)

千吨

	2011	2012	2013	2014	2015
热粘合					4.2
针刺					33.3
水刺					5.0
纺熔					25.9
其他					0.4
合计	-	-	-	-	68.7

按工艺和应用分类的非织造材料产量（2015）（68.7千吨）

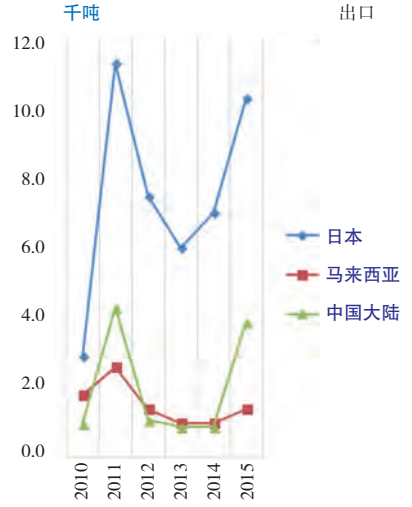


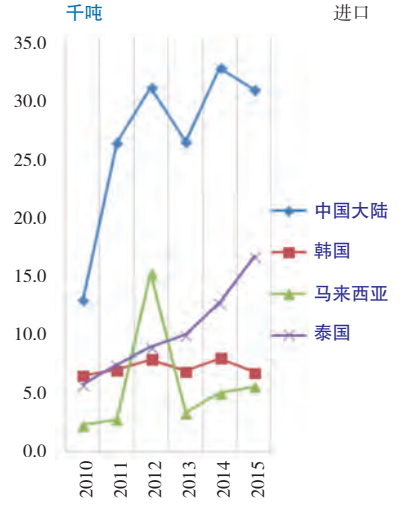


印度尼西亚非织造材料进出口情况（2010 – 2015）

		2010	2011	2012	2013	2014	2015
千吨	出口	12.3	10.9	14.9	14.5	19.6	21.3
	进口	37.0	55.8	77.5	56.4	73.2	72.1
百万美元	出口	36.8	36.8	68.1	62.8	73.6	68.4
	进口	155.4	215.7	237.2	227.7	279.9	274.1
美元/公斤	出口	2.99	3.38	4.57	4.33	3.76	3.21
	进口	4.20	3.87	3.06	4.04	3.82	3.80

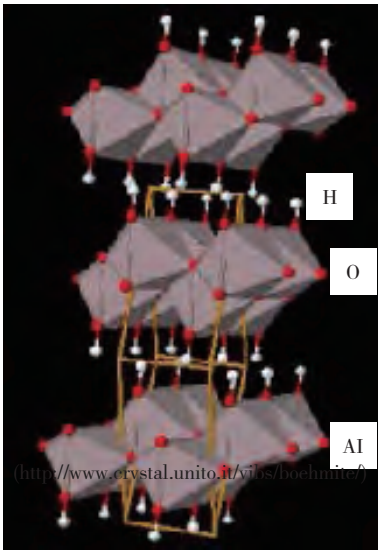
印度尼西亚进出口量最大的3–4位的国家和地区





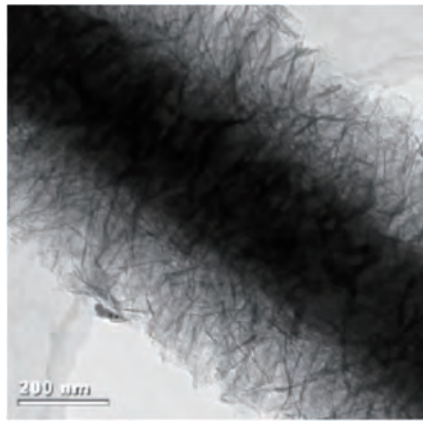
电吸附水过滤材料的性能

梁明智, Eric Liang,
奥斯龙公司台湾办事处处长



水过滤的最新技术

这是一种电吸附滤材，在超细玻璃纤维的架构上用铝土矿AlO(OH)加以活化而成，这技术使用我们标准的湿式不织布制程做出一种深层过滤的水过滤材料。



R.Ristau, IMS, UCONN

活化氧化铝矿物：铝土矿

- 一种电吸附技术，在超细玻璃纤维的架构上将铝土矿AlO(OH)加以活化而成
- 铝土矿AlO(OH)或氢氧化氧化铝
- 稳定的矿物：在酸碱值PH5-9及高温摄氏100度环境下化性物性稳定
- 确证的技术：商品行销全球逾8年

滤材孔径约2um→高流量+ 低压损

* 主材料厚度0.8mm、平均孔径少於2um，滤材具有极高流量及极低压损。
* 在滤材的厚度里大约有400层这样的超细玻璃纤维结构，使得杂质流过滤材时要经过一 段曲折的路经。

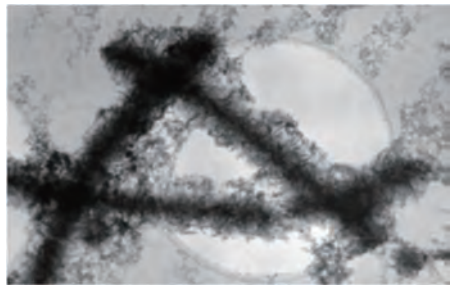
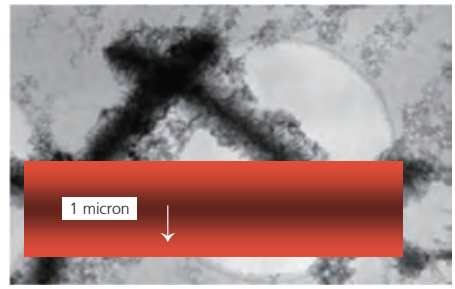


Photo courtesy of R.Ristau, IMS, UCONN

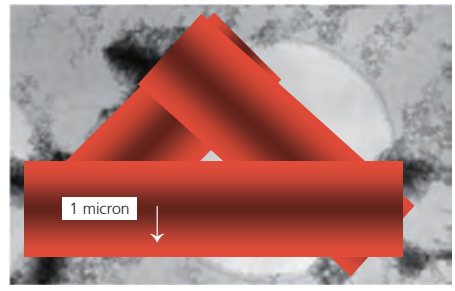
终究是一种电吸附滤材

* 置于PH5-9之间的水中时这天然的中性AlOOH结晶就会产生正电电场。
* 这电场扩及距离玻璃纤维1um之外，如途中红色阴影所示区域。



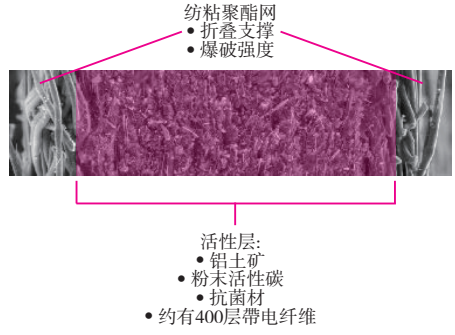
滤材全部空隙都受电场覆盖→高过滤精度+高过滤容量

* 次微米杂质是用电吸附加以过滤，不是机械性过滤。
* 用流体动电位来表示时，在PH7.2时，滤材电场电位可以稳定的测量到在53mV以上。



Disruptor®滤材的剖面图

Disruptor® 是三层结构的复合材料，中间芯材是活性铝土矿材料，两侧用纺粘不织布贴合做为强化及折叠时的支撑用。
独特的效益: 高流量+ 低压损+ 高容量+ 次微米过滤精度



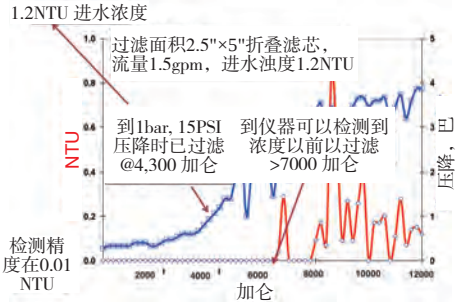
Disruptor®滤水技术提供很好的效益

1) 无化学药剂：去除囊孢、细菌及病毒
2) 高过滤效率–去除细菌，甚至病毒及化学物质
3) 低压损 -（不用泵）免电–省能源
4) 高流通量 -（免储水桶）
5) 不排废水（RO要排水）- 省水
6) 高处理量 - 设计上无尽的可能性

技术信息

7) 能全面用于各种净水区域：个人用品、家用、商用、产业用、市政用–>请多多活用

滤芯的过滤精度及使用寿命



有效作用面积约1.2平方英尺的折叠滤芯，流量1.5gpm，进水浊度1.2NTU，过滤超过7000加仑仍测不到浊度（＜0.01NTU）。滤到压降到达一大气压力（1kg）时已过滤约4300加仑。

病毒与细菌的滤除力

奥斯龙滤材滤除大肠杆菌及噬菌体病毒的能力Escherichia coli(ATCC11229, EC) and MS2 Virus(MS2)以除氯自来水测试							
0%设计容量							
BCS ID	过滤容量	EC进水浓度 cfu/mL	EC出水浓度 cfu/mL	去除率	MS2进水浓度 pfu/mL	MS2出水浓度 pfu/mL	去除率
1602206	N/A	$6.9x10^5$	＜0.45	＞99.99993%	$4.5x10^5$	＜0.45	＞99.9999%
1602207	N/A		＜0.45	＞99.99993%		＜0.45	＞99.9999%
33% Capacity							
1602206	15L	$5.1x10^5$	＜0.45	＞99.99991%	$4.4x10^5$	21.3	99.995%
1602207	15L		＜0.45	＞99.99991%		17.2	99.996%
66% Capacity							
1602206	25L	$5.5x10^5$	＜0.45	＞99.99991%	$4.2x10^5$	940	99.800%
1602207	45L		＜0.45	＞99.99991%		68.6	99.980%
100% Capacity							
1602206	46L	$6.1x10^5$	＜0.45	＞99.99992%	$4.0x10^5$	2200	99.500%
1602207	84L		＜0.45	＞99.99992%		154.5	99.960%

每平方英尺率材的预估除菌量

生物体浓度		生物体处理容量
每毫升ml	每公升Liter	每平方英尺处理量（公升）
1000	$1.0x10^6$	500000
10000	$1.0x10^7$	50000
100000	$1.0x10^8$	5000
1000000	$1.0x10^9$	500

– 生物体（细菌）浓度1,000,000/ml相当于严重污染的河水或污水下水道水质。

– 若用在自来水过滤，以WHO规范的总菌落数<100cfu/ml，忽略其他杂质推算Disruptor过滤容量相当=5,000,000公升/平方英尺。

含银滤材滤菌试验

奥斯龙内部测试：使用一位员工家的井水每周测试，终其试验全程未见细菌穿透。

金属滤除效力 – 几种金属过滤数据

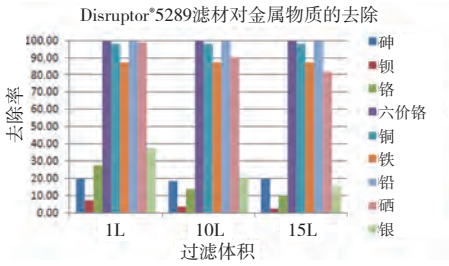
Disruptor®滤材对金属物质的去除率		
	5288	5289
六价铬	99.5%	99.5%
铜	98.1%	98.1%
铁	87.2%	87.2%
铅	99.5%	99.5%
硒	85.9%	81.7%

5288-无碳材料

5289=PAC含碳粉滤材

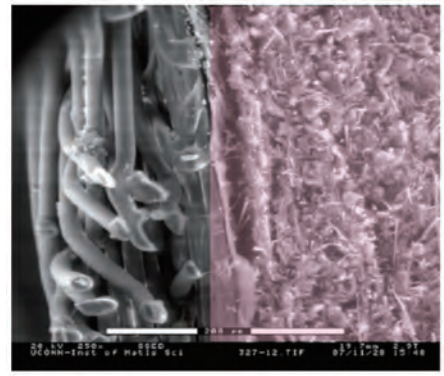
结论：试验数据显示金属物质是由电吸附滤除除，不是靠活性碳粉--实验是由第三方独立试验室用多种金属盐类混合溶液以47mm直径的滤纸过滤。

金属去除力测试：5289含碳PAC滤材



测试结果显示了滤材对六价铬、铜、铁、铅、硒显著的去除效果。用15升的问题水来测试含0.0475平方英尺滤材的样品，相当于每平方英尺的滤材过滤315升水。

含碳粉PAC的滤材的剖面图



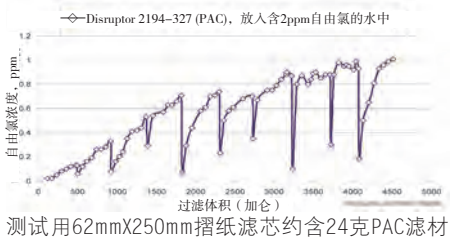
有一类滤材含有粉末状活性炭Powdered Activated Carbon(PAC)，藉其极小的颗粒的极大面积重量比，曲折的路经，滤材的深度，结合了强力的电吸附作用，可以去除许多种有机物，无机物和化学污染物。

技术信息

活化氧化铝＋粉末状活性碳的特性

• Disruptor® PAC（粉末状活性碳）所含有的活性碳100%都会筛过325目的细网。
• 粉末状活性碳的固定是在湿式不织布制程里藉助于电吸附来固着。和一般不织布用机械捕捉方式固定颗粒活性碳的方式不一样。
• 因为使用面积及重量比值很高的活性碳，所以去除氯，溴，碘，多氯联苯和各种微米污染物的反应速率非常的高。
• 可以添加含银的沸石来抑制被滤材捕捉的细菌，使其不繁殖。

PAC滤芯用含氯浓度2.25 ppm 的水测试

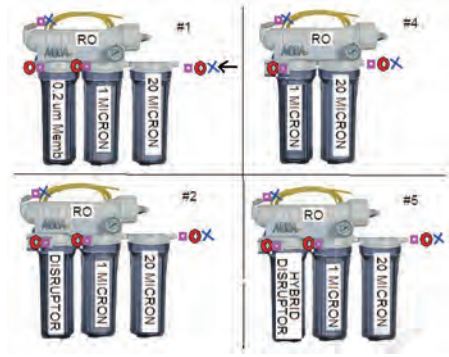


测试用62mmX250mm摺纸滤芯约含24克PAC滤材有效面积0.3平方公尺进水浓度2.25ppm测到出水浓度1.01ppm，共过滤17，000公升水，相当于每公克PAC吸附了958毫克的自由氯

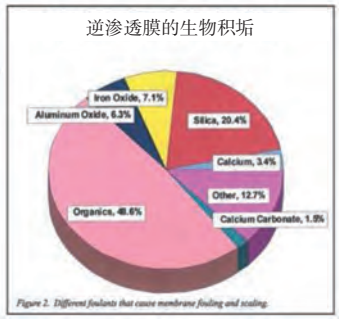
实验用水的基本特性

参数	结果	单位
钙	34	mg/L
镁	5.4	mg/L
钠	17	mg/L
铁	未检测出	mg/L
锰	未检测出	mg/L
硫酸根	5.6	mg/L
二氧化硅	9.2	mg/L
总有机碳	2.5-14	mg/L
总溶解浓度	135-180	mg/L
浊度	8.3	mg/L

当作RO 前过滤的研究



* 这RO前过滤的研究用同一种进水同时流进四个系统，实验进行了24天。
* 每个系统各自使用不同的前过滤器保证。
#1 0.2um薄膜摺纸滤芯；#2 Disruptor®摺紙滤芯；#4 1um熔喷棉滤芯；#5 Disruptor®复合滤芯



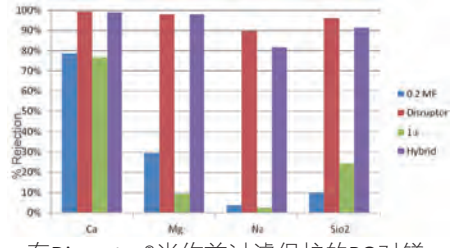
逆渗透膜的生物积垢

• 常见的生物积垢包含下列种类：
- 病毒，细菌，细胞碎片，蛋白质，胶体，自然有机物，铁和矽砂
• 其他已知的生物积垢也包括下列的细胞分子物质：
- 脂质（斥水性或亲水性）
- 磷脂质
- 胺基酸
- 碳水化合物
- 葡萄糖—单醣及多醣体

透明细胞外高分子颗粒（TEP）

TEP是由细菌，矽藻，浮游植物，贝壳等生物体产生。
他具有下列物理特性：
- 产生不定形的小颗粒以至于巨大胶体，大小在0.4um-100um 之间都有
- 很容易变形
- 表面积很大
- 透明
- 带负电荷
- 具粘着性
- 难以监测

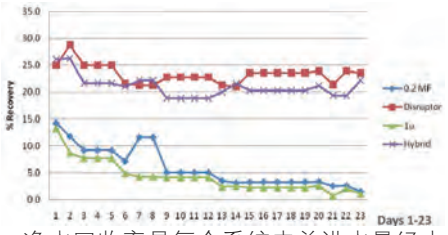
RO系统去除Ca, Mg, Na, SiO_2的效率



• 有Disruptor®当作前过滤保护的RO对镁，钠，矽砂的去除率明显的高很多。
• 有Disruptor®当作前过滤保护的RO对钙的去除率相似，略高一些。

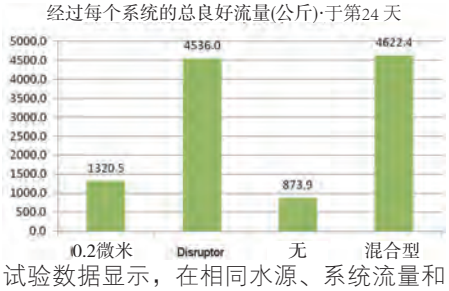
技术信息

RO系统的产水率=%净水回收率

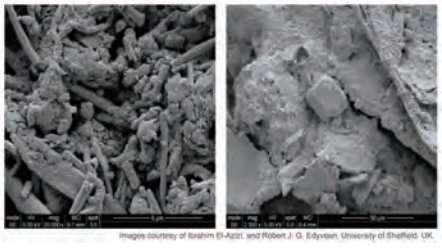


- 净水回收率是每个系统中总进水量经由穿透薄膜而成净水的数量比
- 使用Disruptor做前置过滤保护的RO薄膜，初始产水率就比较高且衰退的慢
- 使用0.2um高分子膜和1.0um前置过滤保护的RO薄膜呈现明显较底的初始净水回收率，且在实验进程中明显的衰退。

RO系统总水量— 第24天



试验数据显示，在相同水源、系统流量和进水压力等条件下，24天试验后四个不同系统呈现的产水量。显然，Disruptor®及Disruptor®混合型过滤器对RO膜保护的表现远于其他常用于RO前过滤的滤器。

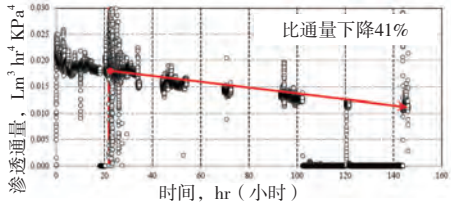


Images courtesy of Ibrahim El-Azizi, and Robert J. G. Edyvean, University of Sheffield, UK

Disruptor®电子显微镜表面相状：新的及使用过的情况

未用Disruptor®时的RO过水量

反渗透膜的污染测试

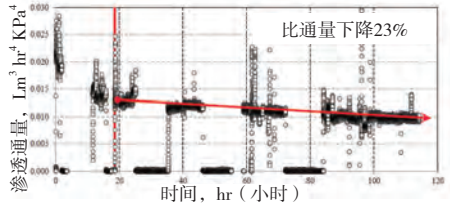


Dr. J. Brant University of wyoming

膜：陶氏DOW XLE
膜处理：压实并在电解质溶液放置22小时
操作压力：200psi（恒压变量）
未处理的给水时导致比通量下降41%
- 反渗透膜有可见的有机沉淀或变色；
- 操作超过120小时后结垢；
维持恒定流量将需要增加41%的供给压力
- 200磅/平方英寸对应282磅/平方英寸；

使用Disruptor®时的RO过水量

反渗透膜的污染测试



膜：陶氏DOW XLE
膜处理：压实并在电解质溶液放置19小时
操作压力：200psi（恒压变量）
未处理的给水导致比通量下降23%
- 反渗透膜最小的变色
- 操作超过120小时后结垢
维持恒定流量将需要增加23%的供给压力
- 200磅/平方英寸对应246磅/平方英寸

结论

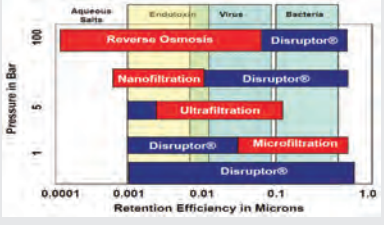
Disruptor®和其他竞争技术的比较

水体修复技术–住宅，商业，工业，市政，海水淡化								
	Disruptor PAC技术	反渗	纳米过滤	超滤	微滤	颗粒盒	碳块	紫外光
污染物								
溶解盐类		X						
内毒素	X	X	X	X	X	X		
病毒	X	X	X					X
细菌	X	X	X	X	X	X	X	X
囊	X	X	X	X	X	X	X	X
多糖	X	X	X	X	X			
胶质	X	X	X	X				
微粒	X	X	X	X	X	X	X	
化学还原	X	X					X	X
微量药物	X	X					X	X

膜定义：RO=反渗透；NF=钠米过滤；UF=超滤；MF=微滤。

Disruptor®技术可以看做是和UF超滤膜有相当的过滤精度，但是每分钟要生产每一加仑的净水所需的滤材面积要小的多。即：Disruptor®在较高流量，较高处理量和较低作业压力下提供很优越的过滤精密度。

Disruptor®在水过滤中的价值和应用



（>>>下转49页）

技术发展趋势

一次性小号套穿式尿布

美国专利号9278032B2

一种一次性套穿尿布，其组成如下：一个纵向轴线和横向轴线；吸收材料的主体由一个可渗透液体的面层，一个不透液体的底层和一个在其间放置的吸湿芯层构成；所述的吸收材料主体具有左右纵向延伸的侧缘，与前后横向延伸的侧缘，这两个侧缘大致以直角相交，前后横向延伸的侧缘在纵向上与前、后腰片以及腰片间的裆片相对放置；每个所述的侧缘的周围都至少配备一片腿部弹性材料，其大致成纵向线性延伸，并沿着所述侧边缘，与纵向轴线平行。环状弹性带由在测接缝出彼此接合的前、后带组成，此设计使得后带在两腿开口处比前带延伸更长；所述的前带和后带都有横向延伸的近端和远端边缘，远端的环状带可作为腰部开口。近端边缘相对于远端材料离吸收材料主体上的裆片更近，每个所述的前带和后带都有一块中央裆片以及与中央裆片相连的左右侧片；所述的前、后带上的横向延伸的两个近端边缘在纵向上彼此偏移，但却彼此平行，且与纵向轴线平行；所述的环状弹性带由一个基层带和多个腰部弹性带还有多个横向上延伸的侧片弹性带组成，这些弹性带与横向轴线平行，并连接在基层带上；所述腰部弹性带被布置在远端边缘附近，在左、右侧片中至少有一块布置了弹性带，环形弹性带的周长有拉伸状态下和自然状态下两种；所述的腰带部分的中央裆片被接合到上述吸收材料主体的前腰片上，腰带背部的中央裆片被接合到上述吸收材料主体的后腰片上，前带部分和后带部分与吸收主体的裆片的左侧和右侧边缘，还有其上相应的左、右侧片的近端边缘，形成了腿部开口，腿部开口的长度大小可用如下公式计算：

腿部开口长度=$Le+Sf+\sqrt{Sb^2+La^2}$

Le：腿部弹性长度

Sf：前侧裆片的弹性长度

Sb：后侧裆片的弹性长度

La：前带部分和后带部分的纵向长度差异

所述的环状带在拉伸状态下的周长不超过700毫米，并且拉伸状态下的周长与自然状态下的周长比在2.5∽2.8之间；所述的腿部开口长度约250∽300毫米；所述前带（LF）的纵向长度小于后带（LB）的纵向长度。

(资料来源: "www.nonwovens-industry.com")

兼备压缩性和吸收性的敷料/绷带

美国专利号9271877B2

一种兼备压缩性和吸收性的敷料/绷带，其内层被夹在第一外层和第二外层之间；其中：内层是一种由基布编织而成的一小段压缩绷带；第一外层由第一吸收性敷料组成，其与所述内层的第一表面直接接触，第一吸收性伤口敷料至少包含一块具有第一有效内表面和第一有效外表面的吸收层；第二外层由第二吸收性伤口敷料组成，其与所述内层的第二表面直接接触，第二吸收性伤口敷料至少包含一块具有第二有效内表面和第二有效外表面的吸收层；第一和第二吸收层各由一块或多块棉、粘胶纤维和聚酯纤维的非织造织物组成；所述第一有效内表面与所述内层的第一表面直接接触；所述第二有效内表面与内层的第二表面直接接触；与第一和第二外表面与内层背向放置。

(资料来源: "www.nonwovens-industry.com")

<<<上接48页

- 当作RO和NF的前过滤来减少生物积垢
- 放置于UF或MF之后来改善出水品质
- 单独使用该不织布滤芯，具有和NF薄膜相当的过滤精密度

设计要领及应用

Disruptor®的过滤效益及使用寿命与适当的设计息息相应

- 使用前置过滤 - 在水中有高浓度颗粒，高浓度有机物和高浓度胶体物质时，在他前面视需要使用颗粒滤芯，复合式滤心或高流量式Disruptor®
- 用MF当作前置率芯来增长使用寿命及降低压损
- 如果挥发性物质及化学物质去除量要求大时，搭配碳棒使用
- 放在RO前和放在UF后面用来改善RO的效率和使用寿命
- 放在RO后面用来去除储水桶槽及管路中滋生的细菌
- 单独使用Disruptor在个人用水壶，水瓶，水龙头水器，厨下型及桌上型净水器及给水器等。
- 也广泛使用在商业用途如：制冰机、饮料应用（净水用来调制茶、咖啡、其他软性饮料、果汁等）。（本文已节选）

产品集锦

Avgol介绍Lux Family系列产品

纺粘、纺熔生产线为卫生产品提供了柔软的触感

舒适的婴儿纸尿裤、成人失禁材料与女性卫生用品，Avgol的Lux Family非织造布已设计提供给卫生产品生产商，它具有显著的、截然不同的柔软触感。

从表面层、底层和腿部护围的舒适度，到耳朵扣、吸收区基底，Avgol的Lux系列满足世界各地最新的卫生产品设计趋势的需求。

这些年的发展中，重大的研究和投资开发已经在Lux中获得成功，包括一系列产品的性能参数，最佳的柔软性和机械力学性能。该系列产品已取得了巨大的市场反馈，并于最近几个月在亚洲推出。

现在Lux Family的产品已经具有了视觉上的区别，同时让大部分消费者感觉到柔软，在触摸时性能可被区分。产品包括Avgol SB & 纺熔SMS—柔软触觉，Avsilk SB & SMS Lux—丝滑柔软和Avsoft & Avspun SB & SMS Lux—棉柔。

(资料来源: "www.nonwovens-industry.com")

WEKO为非织造布提供精准的液体施加

非接触式施加具有诸多优点

WEKO，全称为"Weitmann & Konrad GmbH & Co. KG"。它是全球公认的功能性后整理设备的合作伙伴。高品质非织造布的制造商和后处理商可以提供很多不同的功能性后整理，例如：亲水整理、疏水整理、抗菌整理、加香味处理、阻燃处理、防污或平滑整理。这些功能性的后整理一般采用液相分散体。

由WEKO专门开发的施加系统与常规应用方法相比具有产量高、成本低的特点。WEKO的口号是"绝不含糊，精确运行！"，其在国际市场中也定位为高精度系统，因其对非织造布进行后整理时，所施加的化学试剂的量控制的十分精准，并且绝对干净，且不浪费资源。

WEKO的施加系统可以喷洒出最细微的液滴，这些液滴通过动能施加到纤网上。就算是极其微量的液体，也可以均匀一致地施加到宽达7m的纤网上。

WEKO系统使用户能够调节和控制施加量，从而可靠地提供达到所需功能的用量，并将所需的液体量降至最低。由于使所施加的液体最小化，并且所需的干燥能量的显著减少，因而达到大幅降低成本的效果。

此外，WEKO施液系统为无接触式工作。纤网在长度和宽度上都可以保持尺寸稳定性，并保持其原始体积。与接触式和罗拉式的系统相比，非织造纤网不会被系统的相关力拉伸，也不需要通过橡胶辊挤压。有效提升产品质量。

另外，由于WEKO系统非接触式施液，纤网可以超高速前进，特别是针对非常薄的无纺布。

由于柔性转子的应用，液滴可以施加到纤网一侧，亦或者正反面。液体施加可以根据系统的结构自由选择。可进行单面的疏水整理，例如：有利于纤网背侧的叠层。同样地，不同侧进行不同后处理整理也可以被实现。即使是湿态叠加施液也可以通过非接触式施加以及精确的微量施液来达到。

WEKO施加系统在可持续发展方面也取得了很好的成绩。液体罐的容量是可变的，并且可以根据相应的施液条件来选择。因此仅产生少量的残余液体。

非接触施液还防止纤维、颗粒或颜料被携带到下游施加液体中。液体基本上保持干净，因此由于其化学品的稳定性，可再次用于后续生产。不仅环保，而且可以显着降低废液处理成本。

(资源来自: "www.nonwovens-industry.com")

读者查询表及广告商索引

READER ENQUIRY FORM/ ADVERTISERS' LIST

Return this form by fax to: **(+86-21- 64812993)**

1. Fill in name and address information

姓名 Name: 先生 Mr ☐ 女士 Mrs ☐ 小姐 Ms ☐

(please underline your last name 请注明姓氏)

职称
Title/Position

公司
Company

公司地址
Business Address

国家
Country

邮编
Postal code

电话
Tel no.

传真
Fax no.

手机
Mobile no.

电邮
Email

2. I would like to receive information from the following advertisers

- ☐ Changzhou Jinyi Machinery Co., Ltd. (Front Cover) 常州市锦益机械有限公司
- ☐ Changshu Feilong Nonwoven Machinery Co., Ltd. (Inside Front Cover, Inside Page1) 常熟市飞龙无纺机械有限公司
- ☐ Changshu zhentai Nonwoven Machinery Co., Ltd. (Front Inside Page 2,3) 常熟市振泰无纺机械有限公司
- ☐ The 17th Shanghai International Nonwovens Conference & Exhibition (Front Inside Page 4) 第十七届上海国际非织造材料展览会
- ☐ Winder Works GmbH. (Front Inside Page 5) 德国万德卷绕机公司
- ☐ Grafhk Co., Ltd. (Front Inside Page 6) 瑞士格拉夫远东有限公司
- ☐ Shantou Sanfai Nonwoven Machinery Factory Co., Ltd. (Front Inside Page 7) 汕头三辉无纺机械厂有限公司
- ☐ LYG Boulder Industrial Co.,Ltd (Front Inside Page 8) 连云港柏德实业有限公司
- ☐ JIANGHAI NON–WOVEN FABRIC Co., Ltd. (Front Inside Page 9) 江阴市江海非织造布有限公司
- ☐ Changshu Weicheng Nonwoven Equipment Co., Ltd. (Front Inside Page 10,11) 常熟市伟成非织造成套设备有限公司
- ☐ JIUJING NANHAI CHINA (Front Inside Page 12) 南海•九江
- ☐ Changzhou Jinyi Machinery Co., Ltd. (Inside Back Cover) 常州市锦益机械有限公司
- ☐ NDC Spray Coating System Fabricating Co., Ltd. (Back Cover) 泉州新日成热熔胶设备有限公司

COMPLIMENTARY SUBSCRIPTION FORM

订阅表

(Free to qualified members in Asia Only of the Nonwovens Industry. *All information must be properly TYPED IN)

姓名 Name: 先生 Mr ☐ 女士 Mrs ☐ 小姐 Ms ☐

(please underline your last name 请注明姓氏)

职称
Title/Position

公司
Company

公司地址
Business Address

国家
Country

邮编
Postal code

电话
Tel no.

传真
Fax no.

手机
Mobile no.

电邮
Email

A.Please indicate your job function(tick one box only)请选出您的职业 (单选)

1. [ ] Managing Director/Director/Owner/Partner 常务董事/董事/合伙人
2. [ ] Middle Management 中级管理
3. [ ] Sales/Marketing 销售/市场
4. [ ] Procurement/Purchasing 采购
5. [ ] Research/Development 研发
6. [ ] Others(please specify) 其他(请列明):

B.Please indicate the nature of your business (you many tick more than one box)请选出您的行业性质 (可多选)

1. [ ] Absorbent Product 吸收剂产品
2. [ ] Agriculture Fabric 农用织物
3. [ ] Apparel/Garments 服装
4. [ ] Automative Fabrics 汽车座垫面料
5. [ ] Medical 医疗
6. [ ] Carpeting 地毯
7. [ ] Filtration 过滤器材
8. [ ] Industrial/Technical Textiles 天然纺织品
9. [ ] Roofing 屋顶材料
10. [ ] Electronic 电子
11. [ ] Packaging&Stationary 包装和文具
12. [ ] Insulation & Home Construction 绝缘材料和家用建材
13. [ ] Others(please specify)其他(请列明):

C. Please indicate your Company* primary business activity (you may tick more than one box)请选出贵公司的性质 (可多选)

1. [ ] Manufacturing/Production 制造
2. [ ] Importing/Exporting 进/出口
3. [ ] Converting 改造
4. [ ] Distribution 批发
5. [ ] Consultancy/Research 顾问/研究
6. [ ] Others(please specify)其他(请列明):

Signature(required)签名 Date日期

To request a free subscription, fill out this form and fax to: (65) 6438 6090 or mail to UBM Asia Trade Fairs Pte Ltd, 6 Shenton Way, #15–08 DBS Building Tower 2 Singapore 068809

(The publisher reserves the right to determine qualification for a free subscription)