

customers are looking for, and that will help to fuel ongoing growth.

Forever 21 expects to open 600 new stores in the next three years, and the Oracle system will help its merchandising team support the growth with more streamlined and effective processes, using the system to predict when individual items will be in demand and in what colours, styles, and quantities at each of its six websites and corporate, franchise, and joint-venture owned brick-and-mortar locations in 43 countries, according to a press release.

With the help of Oracle Retail Assortment Planning and Size Profile Optimization, Forever 21 can make data-driven decisions to create optimal assortments based on determining factors such as neckline, price point, fabric and other variables influencing sales. The Oracle Retail solution enables Forever 21 to improve planning decisions based on bottom-up data from its business units, taking into account the fast pace of style changes, seasonality, and sizing demands, as well as product fabrication requirements, and average unit retail costs.

## CAD/CAM developers line up at Texprocess 2015

CAD/CAM developers are going to be a force to reckon with at the upcoming Texprocess 2015 trade fair which runs from May 4-7, 2015, the organisers, Messe Frankfurt say.

The segment has diversified into new growth markets away from the conventional industries towards technical textiles, functional apparel textiles, leather and other flat material.

The offered concepts do not provide for single components but for comprehensive applications offering full integrability into the production environment.

Almost every provider is offering solutions for the automatic cutting of continuously repeating patterned fabrics, applications which can have large savings potential.

As far as the cutting systems are concerned, mechanical knife-cutters provided with interchangeable tools, depending on the type of the system are dominating the section.

Expert Systemtechnik GmbH presents its minijet three-dimensional cutter allowing interpolation in three linear and two rotational axes and which is targeted on prototyping and small lot production.

Besides cutting of technical textiles it is especially suited for cutting high-volume flat material that is used for forming cones and pyramids or for producing chamfered cuts.

Gerber Technology will show its universal CAD/CAM product line-up at the Texprocess trade fair including many fair

novelties which are concentrated on the clothing industry.

One novelty is the integration of an own trend-setting CAD three-dimensional module into the Accumark V 10.0 design which allows the users to cover the entire value chain of a fashion idea in the form of an image.

With regards to CAD, the segment heralds the methodical paradigm shift by means of comprehensive further development of construction and modification modules.

At Texprocess 2015, Swiss manufacturer Zünd will present their single-layer cutters G3 and S3 provided with large tooling equipment for a nearly endless material spectrum.

Zünd will show a wide variety of items; however it will prioritise the range of cutting technical textiles and flat products at the Texprocess and Techtexil trade fairs.

Bullmer will present at the Texprocess trade fair two production lines with material feeding which cover the areas of single-layer cutting, low-layer cutting and high-layer cutting.

## Domestic orders rebound for Italian textile machinery builders

For the Italian textile machinery sector, the year's fourth quarter resulted in a decline in orders, according to ACIMIT, the Italian industry association, which conducted an economic survey indicating a 4% drop over the previous quarter.

The value of the orders index for the period from October to December 2014 came in at 85.0 points (basis: 2010=100). This decline in the index can be blamed on the overall negative performance recorded for this period in markets abroad, where orders effectively came in at an index value of 92.7 points (-6% over the previous period).

On the other hand, domestic orders rebounded compared to the third quarter (+34%), for a value of 50.8 points.

Optimism at ITMA:

Optimism is the key word for Italy's textile machinery sector on the eve of hosting ITMA, the association believes. The Milan edition that takes place in November will exceed the 100,000 square metre threshold (the previous edition held in Barcelona in 2011 covered 80,000 sq. m of exhibition space). By end of January, 388 Italian exhibitors had confirmed their commitment to participate in the event, out of a total of 1500 participants, for an overall growth in acquired exhibition surface area of 48% compared to the previous edition.

Lastly, requests for increased exhibition space already optioned and demands put forward by new exhibitors continue to pile into an already crowded waiting list.



A higher number of visitors also came to the fair from countries like Japan and the USA and as expected, Messe Frankfurt said, there was a decline in the visitor numbers from the Ukraine and Russia.

The premium segment for the bed, bathroom and table in Hall 11 were a source of exclusiveness, structure and orientation at Heimtextil 2015.

## Wood & laminate floor brands up 50% at DOMOTEX asia/CHINAFLOOR

Participation of wood and laminate floor brands is up 50% from the previous edition, at DOMOTEX asia/CHINAFLOOR's 17th annual flooring show to be held from March 24-26, 2015 in Shanghai.

Organisers of the trade show, VNU Exhibitions say the 2015 edition, will require four dedicated halls to house just the wood and laminate exhibitions.

It also adds that, five months before the show kicks-off, the number of global brands booked for this specific product category has already reached the numbers reached in the 2014 edition.

"The record number of wood and laminate floor exhibitors who have signed up for the show, confirms the position of DOMOTEX asia/CHINAFLOOR as the biggest wood and laminate flooring exhibition in the world," VNU informs.

Among the global wood and laminate flooring exhibitors are; Kronoswiss, Kronotex, Lamett, Beaulieu, Ter Hürme, Parla, Stile, Egger, Berry Alloc, Witex, Floover, Tilo, BKB and SE Timber Floors. While some of Asia's more well-known exhibitors include Nature, Sunyard, Yihua, Boer, Jinqiao, Teclic, and Huaming who will be showcasing their latest floorings as well. SE Timber Floors, the largest supplier of wood floors in Sydney – Australia, is returning to the 2015 show after a successful exhibition last year.

Mr. Zak Refai of SE Timber Floors is using the Shanghai show as a dual resource, to also expand SE Timber Floors into the Chinese market.

VNU also informs that total exhibition space, including all flooring products categories, is already 81% sold.

Last year, the full flooring show hosted nearly 1200 exhibitors from across the industry with about 22% representing global companies from outside of China.

In all, the 2015 show will encompass 12 halls covering 140,000 square meters of exhibition space.

In 2015, the Lead Marketing program returns to enrich the experience and return on investment for both visitors and

exhibitors.

The Lead Marketing program is designed to increase visitor traffic at exhibitor booths and to help the roughly 42,000 visitors identify exhibitors that match their areas of interest.

## BASF exits partnership with Novozymes & Cargill

German chemicals company, BASF has decided to exit its R&D partnership with Novozymes and Cargill to develop a bio-based process for producing 3-hydroxypropionic (3-HP) and acrylic acid from renewable raw materials.

BASF joined the collaboration with Novozymes and Cargill in 2012, with the latter two partnering on the project since 2008 and will continue their work to commercialise bio-based 3-HP and derivatives.

"The two companies have initiated efforts to find a new commercialisation partner," Novozymes said in a statement.

"We are continuing our work with Novozymes to commercialise 3-HP to bio-based chemicals, including acrylic acid to bring more sustainable alternatives to fossil-based chemicals," says Cargill's vice president of research and development, Jack Staloch.

"This is pioneering biochemical research, and the technology development and achievements so far have been extraordinary," says Kristian Bjørneboe, vice president for business creation and acquisition at Novozymes.

In 2013, the project accomplished the production of 3-HP in pilot scale, and in September 2014 announced the successful conversion of 3-HP to glacial acrylic acid and superabsorbent polymers.

Acrylic acid is a high-volume chemical with one of its main applications being the manufacture of superabsorbent polymers that can soak up large amounts of liquid and are used mainly in baby diapers and other hygiene products.

Acrylic acid is also used in adhesive raw materials and coatings. Presently, acrylic acid is produced by the oxidation of propylene derived from the refining of crude oil.

## Forever 21 implements Retail Planning solution by Oracle

US based fast fashion apparel retailer, Forever 21, has implemented Oracle Retail Assortment Planning and Size Profile Optimization to help ensure that the apparel and accessories it places in stores each week are those that



# World Textile News

## Creative textiles for Spring-Summer 2016 at Première Vision Paris

The Spring-Summer season is decisive in terms of creative textiles and surface designs. From the sweet softness at the start of the season to the radiance of high Summer, buyers are more than ever looking for original, unique and creative motifs to give that special something to their collections.

As at every edition, alongside the Influences inspirational document made available to buyers at the show, the Première Vision Designs fashion forum presents the SS16 directions and themes for decoration and textile designs using a selection of patterns and developments chosen from the offer at exhibiting studios and designers.

Arranged into display by the show's fashion team around a fruits, flowers, and vegetable theme, the forum invites you to taste Spring-Summer 2016 for yourself, and take a big bite out of the season. Under a bunch of giant, schematised artificial fruit, a tumble of fruit pieces cascades down from the ceiling. As if rolling out from a cornucopia, they are printed with designs selected from the exhibitors' pattern proposals, falling into a basket where they mix with artificially recolored natural fruits. A display that turns the heart of the forum into a cocktail of motifs for visitors to discover.

Like a superb recipe, spring summer 16 decoration offers up a menu of vitamin cocktails, of ideas and creative pleasures. Explosive creative blends for a season where artificial and natural flavours are combined, where treatments and references are mixed with exuberance, patterns are sweetened with gourmet colours, lines and contours are perfumed with sensibility, and flowers and fruits are intoxicated by sweet, madcap folly.

## 2016 edition onwards Heimtextil to begin a day earlier

Complying with the wishes of many exhibitors and visitors, Heimtextil organisers, Messe Frankfurt said, next year's edition will begin on Tuesday and end a day earlier on Friday. The next Heimtextil in Frankfurt am Main will take place from January 12 to January 15, 2016.

For the 2015 edition, Heimtextil said 68,000 trade visitors visited the fair as against 66,265 visitors in 2014.

"For the retail trade, Saturday is an important sales day. In this age of increasing online shopping, it is important that bricks-and-mortar trade retailers can offer their customers first-class products and services", explains Detlef Braun from Messe Frankfurt.

2,759 exhibitors from 68 countries participated in the 2015 edition compared to 2,714 from 62 countries in the previous edition.

According to Messe Frankfurt, at the beginning of the new furnishing season, this year's Heimtextil was able to boast the fifth increase running, in the number of exhibitors and thus send positive signals to the sector.

"This has been the most successful Heimtextil for many years and means we have extended our lead as the world's most important event for home and contract textiles," Detlef Braun. According to a poll undertaken by the organisers, 95 per cent of all visitors said they achieved their goals for the fair, up 2 per cent compared to 2014).

There were particularly large increases in the number of European visitors from Great Britain, Italy and Spain.

From the Arabian Peninsula, more visitors came from Kuwait, Saudi Arabia and the United Arab Emirates.



Organic Frameworks (MOFs) are a new type of materials that have numerous applications in many aspects due to their high structural-dependent potentials, including gas storage and separation ability, ion exchanging, catalytic activity and drug delivery. These materials have recently been used in the elimination of hazardous materials as sorbents due to the presence of regular and homogenous canals and pores at nanometric scale.

The researchers produced porous metal organic frameworks in this research for the elimination of Congo red that is found in industrial wastewaters, specially in textile industry. Congo red is a synthetic and toxic dye, which causes cancer in humans. The dye is soluble in water and creates a red colloid solution.

The industrial production of frameworks is possible due to the simplicity of the synthesis process. Application of the product or the similar improved samples enables the purification of industrial wastewaters. In addition, the product decreases environmental pollution due to the sorption of high amounts of pollutants in a short period of time. The researchers have synthesized two new frameworks entitled TMU-8 and TMU-9 to produce the sorbent from cadmium and organic ligands.

## Iran's exclusive trade fair underway in Qatar

An exclusive expo of Iranian goods and industries opened 17th February in Qatar's capital, Doha.

Over 100 Iranian companies are showcasing their latest products and achievements in the building, metals, oil, gas, petrochemical, water and electricity, architecture, furniture, food and agriculture sectors as well as technical and engineering services in the 5-day event. An exhibition on the Iranian carpet and handicrafts is also underway on the sidelines of the exclusive trade exhibit. Qatar was the 33rd most important trading partner of Iran in the previous Iranian calendar year, which ended on March 20, 2014, according to the Iranian Customs Administration. The annual non-oil trade between Iran and Qatar amounted to \$114.3 million in the previous year. Qatar exported \$17.7 million worth of non-oil goods to Iran and imported \$96.6 million worth of non-oil goods from the country in the past year.

## 30% of Iran machine-made carpets exported

Some 30 percent Iran's total machine-made carpet

production are exported, the head of the Union for Machine-Made Carpet Sellers said. Mohammad Hadi Kamalian told that of 160,000 square meters of machine-made carpet are produced in Iran, some 90,000 square meters are used domestically.

Since tariffs for importing machine-made carpets are high and non-economical, some 28 brands of carpets are currently operating across the country and export their products to foreign countries such as China, Canada and Afghanistan.

Import of modern machinery to Iran since four years ago has made production of fantasy carpets possible by Iranian producers, which were earlier imported from other countries, Kamalian said.

## Iran's petrochemical exports hit \$9 billion

Iran exported \$9 billion worth of petrochemical products since the beginning of current Iranian calendar year (March 21, 2014), according to an official in the National Iranian Petrochemical Company (NIPC).

The country produced 40 million tons of petrochemical products since the beginning of current Iranian year, the Shana News Agency reported on Sunday quoting Ali Mohammad Basaqzadeh, director for production control of NIPC.

Iran's annual petrochemical output is forecast to hit 43 million tons by the yearend (March 20, 2015), Basaqzadeh stated.

In June 2014, National Iranian Petrochemical Company Managing Director Abbas She'ri-Moqaddam said Iran plans to boost annual petrochemical production capacity to 180 million tons from around 60 million tons currently.

He said once semi-finished petrochemical projects are completed and a number of planned petrochemical units come on stream, the country's petrochemical output will be increased to 180 million tons per year.

However, he did not set a specific date by which the goal would be realized.

"The finance required to implement the projects is planned to be secured through attracting foreign investment," he added.

The official said that by implementing four petrochemical plans, worth \$41 billion, Iran's annual petrochemical output will witness a two-million-ton growth in the current Iranian calendar year.

# Iran Textile News

## Iran seeks textile sector investment from D-8 countries

Iran is ready for foreign investments in the textile sector, according to Mohammad Reza Nematzadeh, minister of industries, mines and trade.

Speaking at the fourth meeting of the Industries Ministers of the Developing 8 (D-8) member states in Tehran, Nematzadeh expressed his country's readiness for attracting foreign investments in textile, nanotechnology and auto industries' sectors.

The minister said that joint investment should be increased among the D-8 member states.

Besides Iran, the D-8 consists of Bangladesh, Egypt, Indonesia, Malaysia, Nigeria, Pakistan, and Turkey. The objective of this economic development alliance is to improve the position of the member countries in the world economy, diversify and create new opportunities in trade relations, enhance participation in decision-making at international level, and improve standards of living.

## Achieves Positive Trade Balance with Italy

Italy is the only European country with which Iran has a positive trade balance, he said, adding that the volume of bilateral trade is about \$1.2 billion, including \$800 million of Iranian exports and \$400 million of Italian exports. Pourfallah also said that in textiles, shoes and parent industries the Italians are good customers. In October, Iranian President Hassan Rouhani in a meeting with Italian Ambassador

to Tehran Mauro Conchatori underscored that there are abundant potentials for the further expansion of relations between Iran and Italy.

"Italy stands in the position of Iran's biggest trade partner in Europe and today we should also be able to remove the problems facing the expansion of our relations and enhance the level of these ties to the status that they deserve," Rouhani said during the meeting in Tehran.

Noting that Iran and Italy have always played the role of a bridge in the relations between the East and the West, he said that the two nations enjoy noteworthy potentials and capacities for the further development of their bilateral relations in scientific, cultural, economic, political and international fields. "Today many international and European companies are negotiating over economic and trade cooperation contracts with Iran, and Italy can become active in this field and use the existing opportunity given its extensive economic and industrial relations with Iran in the past," Rouhani said.

## Iranian Scientists Use MOFs to Eliminate Dye Pollutants

Iranian researchers succeeded in the production of nanostructures powerful enough to eliminate toxic pollutants existing in the wastewater of textile industry.

The nanosorbents are produced through a simple and cost-effective method.

In this research, nanostructures were synthesized and their ability to eliminate dye pollutants was investigated. Metal



represented 35 percent of the population, whereas in 2030, the same demographic is forecast to represent 23 percent of the population. The 65 plus group represented 7 percent in 2000 and is forecast to represent 17 percent in 2030. Buying patterns could well shift from fast fashion to comfort and senior care.

In contrast, the Indian demographic changes only slightly with the 30 and under group growing in absolute numbers, but losing share of the total population as life expectancy increases.

### North America

MMF mill consumption in North America — the United States and Canada — peaked in 1999 at a total of 4.7 million tons. The acceptance of China into the World Trade Organization in 2001 and the increased global structure of the supply chain using MMF led to a severe decline in mill consumption in North America, which reached a low in the recession year 2009 at 3 million tons. Slow recovery from this point has seen growth to an estimated 3.25 million tons in 2014, according to the latest PCI Fibres Red Book.

The dominant application for MMF in the region is carpet and rugs. Nylon, polyester and polypropylene all see significant volumes consumed in this sector. It is also an industry sector which, as carpet rather than rugs, is relatively unaffected by import competition. In 2005, the carpet and rug industry in the United States reached a MMF consumption peak level of 1.62 million tons. It is reckoned that total MMF consumption into this sector in 2014 will slightly exceed 1 million tons. The potential for solid growth has been expected over the past three years as the economy has generally improved, but the housing market remains stubbornly depressed. The carpet industry has anticipated a return to better times and invested heavily in changing its product mix, with an increasing focus on filament yarns, polyester seeing most of the investment. Capacity for BCF in polyester, including polytrimethylene terephthalate (PTT), has grown from 85,000 tons in 2008 to a forecast 400,000 tons in 2015. As polyester BCF has gained market share, nylon and polyester staple as well as polypropylene BCF have all lost market share. Since 2005, the share of nylon staple into carpet has dropped from 16 percent to less than 1 percent, and polypropylene BCF has dropped from 24 to 10 percent, while polyester BCF has increased from 3 to 36 percent (See Figure 3).

Carpet is not the only sector that has made investments. There are a number of nonwoven expansions and investments, as well as announcements of increases in polyester staple capacity. Perhaps the most surprising development is the level of investment in cotton and blended fiber spinning with eight new or expanded plants with a total investment of more than \$800 million.

At the time of the TW Innovation Forum, the potential impact of increased oil production from innovative drilling techniques was discussed with the possibility of lower oil prices and therefore cheaper raw materials for MMFs. The speed and the scale of price reductions has taken the industry by surprise, and 2015 holds the promise that MMFs will be at a lower average price level than in 2014.

U.S. Mill Consumption of Carpet Face Fiber  
(per 1,000 tons)

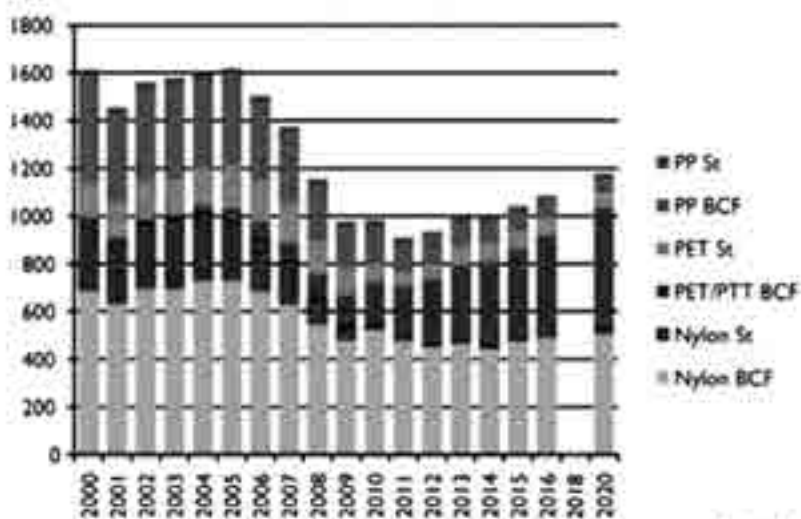


Figure 3

looking at other fibers and their markets to determine if polyester can take further market share.

A very large part of the growth in polyester has come from China with India and Southeast Asia also contributing. In the case of China, both polyester production and apparent domestic demand for the fiber have been very strong. China accounts for 69 percent of all polyester fiber production globally, and if India and Southeast Asia are added, these three regions represent 86 percent of global production.



Figure 2

Polyester is dominant, but nylon, the oldest MMF, still plays an important role in the

fiber business with 4 million tons of global production in 2014. Production is more broadly based by regions than for polyester, and the China, India, Southeast Asia group accounts only for 52 percent of total nylon fiber, with the Americas contributing 20 percent. Nylon has developed into a niche fiber, in that it is focused on a limited number of end uses, but some of these are quite large markets. Carpet is a significant application for nylon and accounts for 17.5 percent of total usage globally and 72 percent of North American nylon production. Other applications where nylon is very successful include airbags, heavy-duty tires, cap ply for radial tires, intimate apparel, sheer hosiery and swimwear. However, the nylon industry has to be aware that polyester is threatening a number of these markets. There has been remarkable growth in polyester bulk continuous filament (BCF) for carpet in North America. Polyester also is now making inroads into the airbag market — particularly for the larger curtain air bags.

Cellulosics have been a surprising success story over the past 10 years, primarily through gains in usage of viscose rayon staple fiber as both spinning fiber for apparel and in nonwoven end uses. Following a steady decline in market share and volume from 1980 to 2000, cellulosics made a remarkable recovery doubling consumption in the last 10 years to 5.2 million tons. Much of this increased demand has come from China where cellulosic staple mill consumption in 2000 totaled 0.6 million tons, and in 2014 totaled 3.0 million tons. Rayon staple received a significant boost in demand in 2010-11 as a result of the high price of cotton. Rayon provided a lower cost substitute for higher-priced cotton and the fiber has held on to its market share gain.

## Forecasting

PCI Fibres provides forecasts of production and mill consumption in its annual World Synthetic Fibres Supply/Demand Report (Red Book). In developing these forecasts it is important to look at regional patterns of consumption at the final consumer level. Consumer demand ultimately drives production and mill consumption. In the 2013 Red Book, it was determined that in 2014 the world final consumer demand for all fibers averages 11.4 kilograms per capita (kg/capita) (See Figure 2). Volumes vary from North America with a high of 37 kg/capita; to Africa, the Middle East and India at 5 kg/capita. In taking the data forward as a forecast to 2030, it is necessary to look at global demographics where there is a significant shift taking place in the relatively near future. China has been the most populous country in the world, but following the single child policy introduced in the 1970s the rate of population growth has contracted significantly, and even as China relaxes its policy, it can be seen that the growing middle class generation is not returning to the multi-children family structure of previous generations. As a result, in the next 12 years India will overtake China as the largest population country in the world. This shift in demographics also is significant because as the average age of the Chinese population increases dramatically, buying patterns are changing. In 2000, the 15-34 year old demographic



Article

# MAN-MADE FIBERS CONTINUE TO GROW

**Polyester dominated recent man-made fiber demand growth, but there is global demand for all man-made fibers.**

**Alasdair Carmichael**

The origins of the man-made fiber (MMF) industry are found in the first commercial production of artificial silk using cellulose by De Chardonnet in France in 1892. Regrettably the business declared bankruptcy in 1894! However, not to be discouraged, the industry continued to develop other cellulose and acetates until the arrival of nylon, which was discovered by Wallace Carothers at DuPont in the 1930s. His discovery brought the first truly MMF to the market. Initial applications including military uses during World War II and replacing silk in women's hosiery. Nylon was followed by the ICI development of polyester, discovered in the early 1940s by two British scientists working for Calico Printers. From these early beginnings the MMF industry was born, and through continuous development it recorded demand in 2014 of 55.2 million tons (122 billion pounds) of synthetic fiber, in addition to man-made cellulosic fiber demand of 5.2 million tons. The natural fiber industry, including cotton and wool, has a demand of 25.4 million tons.

Figure 1 shows the history of fiber demand in millions of tons, and demonstrates the dominant role that polyester has had in fiber demand growth. The graph also shows the continuing dominance of polyester going forward, as calculated by England-based PCI Fibres in its forecast out to 2030. Polyester demand passed that of cotton in 2002, and has continued to grow at a significantly faster rate than all other fiber types.

In 1980, polyester demand was only 5.2 million tons globally and by 2000, it had reached 19.2 million tons. In 2014, demand is put at 46.1 million tons. Looking at the period from 1980-2014, total fiber demand growth has been 55.7 million tons — 73.4 percent of which is down to polyester. The message is clear that polyester has gained significant share from all other fibers, both man-made and natural, and that anyone in the fiber business has to be aware that polyester producers are constantly

