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Yarn // Fiber *Spinning *Weaving * Knitting *Dyeing // Finishing // Washing // Drying * Nonwovens // Technical Textiles *Textiles // Apparel // Garment

Sustainability gains momentum in the textile industry

- Interview with: Raffaella Carabelli, President ACIMIT
- Interview with: Verena Thies, CEO Thies Textilmaschinen
- Heimtextil 2015 showed an amazing range of new textile design products
- DOMOTEX 2015 showcases countless textile innovations
- Country Focus: Italy

Content

From the editor

Dear Reader,

Do you share our feeling that 2015 could be a very special year for the textile industry? During the course of our research for the report on sustainability, we came across so many innovations and discovered so many business objectives for the current year that we simply can't wait to find out what happens next. These expectations are, of course, fuelled by major events. As always, the year kicked off with the Domotex and the Heimtextil, which have already yielded countless positive experiences and results. These two exhibitions are soon to be followed by the Techtextil and the Texprocess, which we will be reporting on in detail in the next issue. The end of the year will see the staging of the ITMA, an absolute highlight and no doubt a "must attend" event for all industry leaders in the textile value chain, as this is where the future of the textile industry is presented to the world.

You think I'm exaggerating? Well, once you've read our report on sustainability, you may be inclined to agree with me. It's becoming increasingly clear that there can be no future without sustainable action - not because the world is facing imminent destruction, but simply because most companies can't afford to operate any other way. You will notice that the major brands and retailers have set themselves very high goals. These cannot be achieved without state-of-the-art production processes and machinery along the entire value chain. And the ITMA, as a showcase for innovation in the textile machinery sector, will no doubt be presenting the best available solutions under the motto "Master the art of the sustainable innovation".

The Italian textile machinery industry could not be better equipped to meet these demands, according to statements made by ACIMIT President Raffaella Carabelli in the exclusive TexData interview. Italy also features in this issue's country focus. Equally well placed are the German textile machinery manufacturers, who pool and market their efforts via VDMA's "Blue Competence" initiative. Ms Verena Thies, CEO of Thies Textilmaschinen, reports in a further exclusive interview on the innovations developed by Thies in the field of sustainability. Halleluja ! While I'm writing this, the press release from Euratex is just coming in: "Euratex-led Energy Made-to-Measure campaign - the initiative for energy efficiency in the European textile and clothing industry - will intensify as of 2015 thanks to new collaboration with both the VDMA's Blue Competence initiative and the Sustainable Technologies project of ACIMIT. Two separate Memorandums of Understanding have just been signed for these actions to join efforts with the campaign for the benefit of the European companies."

This is great news for sustainability and for Europe.
What's your opinion on sustainability and our reports on this topic? As always, we look forward to receiving your comments and suggestions. Please write to us at redaktion@texdata.com.

We wish you a very successful year!

Best regards
Oliver Schmidt

Sustainability gains momentum in the textile industry

by Oliver Schmidt

For the 4th time we would like, in the first issue of the year, to give you an overview of what has been happening in the area of sustainability with regard to textile production over the last year, as well as our usual overview of the current year. Because the concept of sustainability still resonates differently with many people, we would initially like to define the concept of sustainability. Our definition is that which the Brundtland Commission provided to the United Nations on March 20th 1987: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

The Brundtland Commission is named after its chairperson, former Norwegian Prime Minister Gro Harlem Brundtland, who, in 1983 headed the United Nations World Commission for the Environment and Development. She had the assignment to indicate long-term perspectives for a third world aid policy which was also environmentally friendly. In her final document, commonly known as the Brundtland Report, “Our common future“, dated 1987, the basic concept of sustainable development is defined.

With the work of the Brundlandt Commission, the UN and the subsequent UN Conference for Environment and Development in 1992 devised a conceptual understanding of sustainability which was intended to unite varied political interests, and which treated environmental, economic and social development objectives equally.

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Shanghaitex 2015
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Booth W1 C01

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“sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Brundtland Comission

The word sustainability is used here as a set of objectives, creating permanently stable societies in which ecological, economic and social aims are not played against one another but given equal standing. This conceptual understanding of sustainability includes the aspiration that these aims are valid for all countries of the world (global justice), and for future generations too (generational equity).

Global justice was strongly based on the social principle of fair wages, while generational equity had the protection of the environment and the preservation of the Earth’s ecosystem at heart.

„The world summit in Rio made a mistake 20 years ago with regard to sustainability. And if I am honest, I must say that we haven‘t achieved much.“

Ban Ki Moon, UN Secretary General

The idea or principle of sustainability is 28 years old in 2015. In the opinion of UN Secretary General Ban Ki Moon, it has not been sufficiently implemented. At the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012 he said: “The world summit in Rio made a mistake 20 years ago with regard to sustainability. And if I am honest, I must say that we haven’t achieved much.“

The reason for this statement is as obvious as it is simple. Politicians initially attempted to solve the problem without recourse to industry because industry was seen as the cause of environmental damage and social injustice. However, sustainability cannot be implemented without the involvement of the worldwide operating groups, particularly as for many governments, subjects such as employment and economic growth have, understandably, a higher value.

Over the course of time, the enterprises themselves have taken more interest in the subject of sustainability and have founded their own initiatives and organisations to move the subject further on. Such an organisation is, for example, the World Business Council for Sustainable Development (WBCSD), an organisation controlled by enterprise boards of directors which deals exclusively with the subject of “Economy and Sustainable Development“ and owes its formation to an initiative of the Swiss enterpriser Stephan Schmidheiny, a participant at the 1992 conference. The WBCSD provides a forum for enterprises in which they can exchange knowledge and experience with regard to sustainable development and propagate enterprise positions in cooperation with governments, non-governmental and international organisations.

How important the subject of sustainability is can be seen from these headlines: Population growth, world hunger, lack of raw materials, resource shortages, and to top it all, the unforeseeable effects of climate change.

The WBCSD described the challenge as follows: „Global temperatures are increasing and science has confirmed that greenhouse gas emissions and other human activities have been the dominant cause of observed warming since the mid-20th century. There is international consensus that we must limit the increase in global temperature to no more than 2˚C. If this is not achieved, the consequences of climate change will be disastrous for people, the environment and economies.

The transition to a low-carbon economy is the only way to secure sustainable economic growth and prosperity for all."

While two degrees of warming sounds virtually harmless, the word "disaster" probably correctly describes the results. All industries are hereby requested to make a decisive contribution to prevent this disaster, and even if the textile industry is not one of the main culprits when it comes to its carbon footprint and the consumption of fossil resources, it has, as probably the most international industry, a very great responsibility, as well as a potential pioneering role.

„...the consequences of climate change will be disastrous for people, the environment and economies. "

WBCSD

For this reason, it is not a surprise that the subject of sustainability is increasingly of the highest significance along the textile value chain, and there should be no organisation, fair, conference or enterprise which does not have the subject right at the top of its agenda.

For the textile industry, the subject of sustainability has the following environmental aspects:

+ Reduction of the CO_2 footprint along the textile value chain
+ Reduction of air pollution
+ Reduction of water pollution
+ Reduction of pollution on land
+ Reduction of the use of finite resources
+ The establishment of closed loops with recycling and reuse of raw materials

We have described how and when the subject of sustainability found its way into the textile industry and which developments it has undergone over recent years extensively in the last three articles. Now we would like to peruse the latest events and developments on the subject. Beginning with fibres, we make our way down the textile production process, starting with the textile machine builders and the textile chemicals industry, then look at textile enterprises, brands and retailers and their activities and innovations on the subject. To conclude, we will briefly touch on the events and fairs, and venture a tentative look into the future.

Fibers

Let us begin with the fibres, and more precisely with a natural fibre; cotton. The idea of sustainability here means cotton cultivation without appreciable burdens on land and excessive water use and irrigation methods. In addition, organic cotton may not be genetically modified. In the area of organic cotton, not much in the way of development has happened.

Even though the 2013 “Organic Cotton Report“ from the Textile Exchange, the main organisation for the support of organic cotton, boasts of optimism, it deals mainly with the superficial demands from the retail sector, while in the area of production, organic cotton is experiencing a decline.

„The balance between declining production and increasing demand will have ramifications as we move into the coming years. “

2013 “Organic Cotton Report“ from the Textile Exchange

In the light of this, and according to the Bremen cotton stock exchange’s annual report of 2012 which reported that less than 1% of worldwide cotton production is dedicated to producing organic cotton, sustainable production methods which seek a balance with Nature seem a long way off.

In addition, the increased use of organic cotton by leading brands and retailers makes clear that in the past, the organic cotton grown was not used in its entirety for production. A sobering thought.

http://www.uncsd2012.org

http://www.wbcsd.org

http://www.textileexchange.org

http://www.cottonmadeinafrica.org

In the 2009/2010 season, organic cotton production had risen by 38% to about 242,000 tonnes, only to fall back to 151,000 tonnes the following season. In 2011/12, worldwide production of organic cotton was estimated to be 143,600 tonnes, falling again in the 2012/13 season. The Textile Exchange's positive appraisal for the increase in organic cotton use is based on the increased demand from the large retailers and brands.

In the report it also says, for example: „The organic cotton sector is facing specific challenges with lack of seed availability and a miss-match between supply and demand. Despite these uncertainties, consumer demand for organic cotton is steadily growing. More and more brands have made commitments to use 100 percent organic cotton by ambitious target dates, often 2020.

New business models are being implemented through collaboration between big and small brands to develop strategies around organic cotton, and investments are being made in seed availability." And further:"The balance between declining production and increasing demand will have ramifications as we move into the coming years. Any fiber from years with high production will be absorbed and new demand could be an issue.

The solution to the supply/demand balance lies in having the business models that provide key market linkage. We spoke to several brands that have robust organic cotton programs, are projecting future growth and have confidence their supply chain can deliver."

How much demand has increased is made clear by the Top 10 list of organic cotton users by volume. In 2012, it took a mimimum of 2 million pounds to gain entry into the Top 10. This year it took a mimimum of 3 million pounds - that's a 50% growth! Additionally, it is worth mentioning that China has made a leap up the list of organic cotton producers. China's organic cotton fiber production grew by 27 percent. Strong growth, combined with a drop in Turkish production, saw China achieve number two position in terms of volumes for the first time. Driven by demand, Chinese manufacturers are in turn signaling to their growers that organic cotton is sought after. Demand is coming from both global clients and, increasingly, the domestic market.

The report contains some more positive signals for example Tajikistan, in Central Asia, is focused on expansion and the investment in new African countries (including Ethiopia, Kenya, Madagascar, Mozambique, and Zambia) by Organimark, Helvetas, PAN UK, and others, is beginning to take off. While still in its infancy, this investment alongside advances in manufacturing and other value-add with a sustainability component should result in exciting new market opportunities for Africa.

Hope remains that areas under organic cotton cultivation and production will once again increase. An annual increase of 20% would mean that in 20 years, 38% of worldwide cotton production would be organic.

What this would mean for sustainability can be appreciated when one has a look at the results of the initial "Life Cycle Assessment (LCA) of organic cotton" study commissioned by the Textile Exchange for its annual conference in November 2014 in Portland (USA). It reports: „Having a reliable inventory and impact assessment for conventional cotton on hand, the textile community has requested a similar study to provide data on organic cotton cultivation. Textile Exchange (TE) answered this industry need with an impartial, credible and vetted study, conducted by PE INTERNATIONAL." Results indicate that organically grown cotton has the following potential impact savings over conventional: 46 percent reduced global warming potential; 70 percent reduced acidification potential; 26 percent reduced eutrophication potential (soil erosion); 91 percent reduced blue water consumption; and 62 percent reduced primary energy demand (non-renewable).

In addition, an Organic Cotton Accelerator (OCA) initiative was introduced at the annual Textile Exchange organic cotton roundtable conference in Istanbul in 2013. The idea of OCA is to find and fund innovative ways to ensure the supply of organic cotton by working with "the entire supply chain". Objectives are to improve social, environmental and economic prosperity for organic cotton farmers, promote best practices throughout the organic cotton value chain and ensure the financial viability of OCA.

Another new initiative aimed at accelerating the uptake of organic cotton is the new Cotton-made-in-Africa (CmiA)-Organic Standard to create market access and social added value for African organic cotton farmers. The Aid by Trade Foundation (AbTF) is the largest cotton initiative in Africa and is committed to integrating cotton originating from Africa into the textile industry with increasing success. The foundation is now also dedicated to promoting organic cotton production in Africa as well as its competitiveness on international markets. After successful verification of the Tanzanian cotton company BioSustain, organic cotton according to the CmiA Organic Standard is now available on the market.

"The new CmiA Organic Standard will benefit both the more than 9,000 successfully verified cotton farmers in Tanzania as well as textile companies worldwide as we are also working on market access for CmiA Organic cotton according to the market-oriented CmiA principles," explains Tina Stridde, Managing Director of the foundation, during the official announcement of the news at this year's Textile Exchange conference in Portland, USA.

Cotton is one of the main sources of income in the poorest regions of rural Africa.

„The new CmiA Organic Standard will benefit both the more than 9,000 successfully verified cotton farmers in Tanzania as well as textile companies worldwide..."

Tina Stridde, Managing Director of Aid by Trade Foundation (AbTF)

Against this backdrop, the Aid by Trade Foundation is intensifying its commitment to a more sustainable production both for people and nature with its current Cotton made in Africa (CmiA) Standard. As an extension to the portfolio, it now also offers CmiA Organic cotton. The new standard compliments the existing Eco Standard EC No. 834/2007 and the Global Organic Textile Standard (GOTS) with the social and economic criteria of CmiA. By expanding the existing organic cotton standards to social and economic criteria from the CmiA standard, the foundation creates more than just ecological added value with Cotton made in Africa-Organic in additional regions of Africa.

Through its economic and social components it ensures higher yields, a fair income for the farmers, measures towards the advancement of women, and investments in school infrastructure, for example. This significantly contributes to reducing poverty and ensuring food security for organic cotton farmers in Africa. It also increases the competitiveness of organic cotton originating from Africa thanks to its marketable approach. The CmiA-Organic standard was developed on the initiative of AbTF in close cooperation with independent experts for standard development, organic cotton farmers, local actors, and Textile Exchange.

It would be desirable that these initiatives yield fruit as quickly as possible because in its latest forecast, the ICAC expects that the cotton areas under cultivation will be down by 6% for the 2015/2016 season from January 2015. This is because of the current low price of cotton; about 60 USD cents per pound, which is a five-year low. And also because at the end of January, the Cotton Corporation of India announced sales of state cotton supplies which had been bought under the MSP programme to begin to exert pressure on global prices, according to the Bremen cotton stock exchange. Would it not be worthwhile to seek alternatives? Especially in the light of higher organic cotton prices and the Textile Exchange's claims of increased demand which, according to the laws of supply and demand, would enable the price to increase.

As well as organic cotton, recycled cotton is of increasing significance for sustainable production. In February 2014 the retailer H&M introduced five classic denim pieces, made from recycled cotton. There are jeans, vests and jackets in a variety of washes, and each item contains 20% recycled cotton, which is the maximum amount that can be used today when making new fabric without compromising the quality. The goal is to progressively increase the use of post-consumer recycled materials and this is a start that H&M hopes to scale up. "The recycled cotton could originate from any cotton garments. We chose to produce denim products because we work a lot with denim and with making denim production more sustainable. There is also good recycling technique available for denim", says Jon Loman, concept designer at H&M.

„The recycled cotton could originate from any cotton garments. "

Jon Loman, concept designer at H&M

In its overview of the Global Recycled Standard (GRS), the Textile Exchange lists four certified member enterprises who produce textiles and fibres containing a portion of post consumer recycled cotton as well as 22 non-members, mainly from India, Pakistan and Turkey.

Let's look at another fibre; polyester. In the mid-1990s, polyester replaced cotton as the most-produced fibre worldwide, and will continue to increase by about 40% by 2020 to a total of 56 million tonnes. As a chemical fibre, polyester is based on oil, a fossil raw material. Worldwide crude oil production is about 4,100 million tonnes (2012) annually. A little more than 1% of this crude oil is used for the production of 40-50 million tonnes of polyester fibres.

For many years, however, as well as "virgin" polyester production, polyester has also been made from recycled materials, mainly from PET. It is estimated that at least 4000 million tonnes of PET bottles are produced annually, and this number is increasing. Initial attempts to recycle PET bottles took place in 1977, mainly for recycled polyester or R polyester.

Today, R polyester is offered by many enterprises, for example from Unifi, under the name Repreve, from Radici under the name r-Radyarn, or from Freudenberg under the name Viledon® ECO, and has also been included in the ranges of large retailers and brands such as H&M, Otto and Adidas. However, there is still a big gap between marketing and the actual offer, something which we want to look at more closely when considering brands and retailers.

„GOTS tightened its regulations with Version 4.0 of its standard for the use of its ecological seal and has excluded virgin polyester from the list of the fibres “

GOTS

R polyester is very important for all products with a GOTS certificate because in March 2014, GOTS tightened its regulations with Version 4.0 of its standard for the use of its ecological seal and has excluded virgin polyester from the list of the fibres which may be used as a supplement to organically grown natural fibres. Global Recycled Standard (GRS) also reviewed its regulations 2014. The ownership of GRS was passed to Textile Exchange January 1, 2011.

Textile Exchange initiated a revision of the standard in early 2012 with the goal to make the standard more robust and to include new chemical requirements. An International Working Group (IWG) of Certification Bodies was developed to revise the standard. The Global Recycled Standard (GRS) is a product standard for tracking and verifying the content of recycled materials in a final product, while ensuring strict production requirements. Textile Exchange writes: “The GRS is intended to meet the need of companies looking to verify the recycled content of their products (both finished and intermediate products) and to verify responsible social, environmental, and chemical practices in the production of these products. The objectives of the GRS are to define requirements to ensure accurate content claims, good working conditions, and that harmful environmental and chemical impacts are minimized.”

http://www.global-standard.org

http://www.repreve.com

http://www.radicigroup.com

http://www.freudenberg-nw.com

There are two different methods for the production of R polyester: Mechanically and by chemical recycling. In the mechanical process, the PET bottles are cleaned, dried, shredded and processed into chips which can then be converted to melt. In the chemical procedure they are also chopped into many small parts and decolorized. Finally they undergo depolymerization, the chemical method utilizing repolymerization. Both procedures have their advantages and disadvantages. Mechanical recycling is more limited in acceptable inputs, but is less expensive and saves more energy. Chemical recycling provides a broad range of accptable inputs, but is more expensive and needs more energy.

Because chemical recycling involves the molecular level, recycled polyester does not differ from virgin polyester. The Japanese company Teijin offers PET bottle chemical recycling, going one step further with the establishment of a closed loop with the name ecocircle, chemically recycling used polyester clothing and converting it into new polyester yarn.

„Teijin‘s chemical recycling technology, a first of its kind in the world, makes it possible to refine old polyester into new polyester raw material equivalent to that made from petroleum. “

Teijin

The company writes: „Teijin’s chemical recycling technology, a first of its kind in the world, makes it possible to refine old polyester into new polyester raw material equivalent to that made from petroleum. For example, an old and worn out polyester fleece and coat can be recycled into a new fleece and coat over and over again. Moreover, this technology reduces both energy consumption and CO2 emissions drastically when compared to using oil to make new polyester raw materials.”

In 2002, Teijin, along with apparel and sportswear manufacturers that shared the commitment, started a closed-loop recycling system named “ECO CIRCLE”, based on their one-of-a-kind chemical recycling technology. Participation grew to include companies from Japan, the United States, the EU and China, and since then, over 150 partner companies are now involved. In 2012, the company has started the promotion of closed-loop recycling system development in China.

http://www.teijin.com

http://www.jinggong.com

In 2012 Teijin established a joint venture with the Chinese company Jinggong Holding Group to create a company called Zhejiang Jiaren New Materials Co. Ltd., in Shaoxing, Zhejiang province, China, one of China's largest production bases for fiber products. Through the joint venture, the two companies will chemically recycle polyester as well as manufacture and sell the resulting fibers, with the aim of establishing a closed-loop recycling system in China similar to Teijin's Eco Circle program presently in operation in Japan.

The market and demand figures seem to be good, as Teijin report in their Consolidated Financial Statements Summary dated 3.2.2015: "In the PRC, our polyester recycling joint venture in Zhejiang Province proceeded with the construction of a new production facility, which is scheduled to commence operations before the end of fiscal 2014."

A new development by Oerlikon Barmag could improve the mechanical recycling situation, or more precisely, that of the company's 50% subsidiary BB Engineering. The new VarioFil R+ by BBE is the world's first POY spinning line which uses recycled bottle flakes as feedstock for dope-dyed textile POY.

http://www.jr-eco.com


http://www.bbeng.de

„The new VarioFil R+ by BBE is the world's first POY spinning line which uses recycled bottle flakes as feedstock for dope-dyed textile POY. "

BB Engineering

The line provides several technological features such as a special extrusion system for bottle flake materials, the latest metering and blending technology for dope-dyeing and an advanced 2-step melt filtration. The result is a high quality dope-dyed POY. The turnkey machine comprises 4 spinning positions, each equipped with an Oerlikon Barmag 10-end WINGS® POY winder. By using bottle flakes instead of rPET chips the VarioFil R+ avoids the additional pelletizing of bottle flakes into rPET chips and reduces the spinning process for one step. This leads to a significant advantage in terms of investment and energy costs. It also provides the latest technology for dope-dyeing, which is the most resource-saving dyeing process.

At an Open House Event at its facilities in Remscheid, Germany in January 2015 BBE presented the machine in working mode to more than 120 customers from all around the world and the company demonstrated the yarn quality by showing the texturizing process, converting the manufactured rPOY into DTY on Oerlikon Barmag's eAFK texturizing machine.

Another important part of the machine is BBE's brand-new cleaning system for melt filters, known as White Filter Cleaning WFC. WFC allows the cleaning of melt filters, but also of other melt-contaminated parts without any chemical solvents and is a good complementary system for the VarioFil R+ line to clean its filtration equipment.

When a world market leader takes up a niche technology and improves it with its own technology leadership, and this additionally serves to make production cheaper, this could be a big step toward increasing R polyester market share, propelling it in a mainstream direction. It ought not to be forgotten that the machine output, with about 450 kg/h of polyester, is not in any way competition for the conventional polyester production plants. A problem, though, that Oerlikon Barmag will be able to solve very quickly with enough market demand.

Unfortunately there is also bad news for PET recycled polyester from the beverage industry itself. Manufacturers of plants for the production of PET bottles, such as the German company Krones, have also recognised that PET bottles are a popular resource which industry can produce in a more resource-conserving and cheaper way.

„The use of recyclate has clear economic and ecological benefits.“

Krones

„This biobased PET has exhibited properties equivalent to petro-based PET in laboratory conditions. “

Toray

The enterprise writes on their web page: „The Krones MetaPure bottle-to-bottle recycling plant efficiently recycles used PET bottles - and the recyclate is then reused in the food and beverage industry as recycled PET (rPET). The use of recyclate has clear economic and ecological benefits.”

If every industrial sector wishes to implement and propel their own closed loop, the textile industry will soon face the problem of having to recycle large amounts of post-consumer polyester textiles to new yarn in the way that Teijin have done, or a little bit further down the line, to produce biodegradable polyester from biopolymers. Concepts are being put forward by scientific researchers, as well as from industry.

Already in 2011 the Japanese company Toray succeeds in the production of the world's first fully renewable, biobased polyethylene terephthalate (PET) fiber. The company announced: “Toray used terephthalic acid synthesized from Gevo's biobased para-xylene and commercially available renewable mono ethylene glycol (MEG) as raw materials, and successfully produced the PET samples by applying a new technology and PET polymerization in June this year.

This biobased PET has exhibited properties equivalent to petro-based PET in laboratory conditions. Toray has also succeeded in the production of a fiber using this fully renewable biobased PET for the first time in the world. The success of this trial, albeit under laboratory conditions, is proof that polyester fiber can be industrially produced from fully renewable biomass feedstock alone. This is a significant step that would contribute to the realization of a sustainable, low-carbon society."

Since 2001 there has been a solution to produce PLA similar to polyester from maize. The renowned magazine National Geographic reported: „U.S. textile manufacturers are exploring an innovative way of making clothing, furniture upholstery, and other products from corn.

The product, which has been named Natureworks, is the brainchild of Minnesota-based Cargill Dow. Last year, researchers there found that the starch in corn could be used to form a fiber that's very similar to conventional polyester. Unifi's role in the process will be to texture the raw yarn so that it's suitable to knit or weave into fabric."

From this research project, Cargill and PTT Global Chemical founded the company NatureWorks, and they produce PLA under the name Ingeo. The manufacturing facility, located in Blair, Nebraska, USA, has a name plate capacity of 140,000 metric tons of Ingeo biopolymer. In September 2014 NatureWorks announced: "NatureWorks releases today the first findings of its updated eco-profile for its naturally advanced family of Ingeo™ biopolymers.

The revised profile, which is based on the latest version of PE INTERNATIONAL's GaBi LCA software and database, follows the ISO 14040/44 standards and reinforces the fact that the production of Ingeo polymer emits fewer greenhouse gases and consumes less non-renewable energy compared to commonly used plastics such as polystyrene (PS), polyethylene terephthalate (PET), and polycarbonate (PC)." And in December 2014 NatureWorks and Northern Technologies International Corporation (Nasdaq: NTIC) announced the companies are collaborating on marketing and sales of Ingeo™ in India and surrounding countries, including Bangladesh, Pakistan, and Sri Lanka.

http://www.toray.com

http://www.cargill.com

http://www.natureworksllc.com

http://www.krones.com

In May 2014 INVISTA, one of the world's largest integrated producers of polymers and fibers, and owner of the LYCRA® brand, introduced the only commercial offering of a bio-derived spandex available globally and for use in a wide variety of apparel fabrics and garments. Approximately 70 percent by weight of the new LYCRA® bio-derived spandex fiber comes from a renewable source made from dextrose derived from corn. The production of commercial quantities is planned for the autumn/winter 2015 and spring/summer 2016 collections. One of the first companies which included PLA clothing in its range was the US company Patagonia. They later dropped PLA due to the fact that it contained genetically modified maize. Because food is a valid discussion point as a raw material due to world hunger, NatureWorks want to develop alternatives. On their homepage it says: „In the future Ingeo will be made from cellulosic raw materials, agricultural wastes and non-food plants."

And with it we come to the last fibre group we are considering here: Fibres based on cellulose, or more precisely Lyocell, which is a product made by Lenzing AG under the trade name Tencel.

„Our new second generation TENCEL® fiber production facility is a technological milestone for lyocell technology,... "

Peter Untersperger, Chief Executive Officer of Lenzing AG

While traditional procedures are technologically very expansive and detrimental to the environment, such as the viscose process, the Lyocell process is enviromentally friendly, recycling nearly all of the N-Methylmorpholine-N-oxide used in the process, rendering it practically emission-free, so that it has even won the European Union environmental prize.

In 2014 the Lenzing Group has successfully initiated production at its new TENCEL® jumbo production facility, the largest in the world, at the Lenzing site in Upper Austria. In December the enterprise received the initial results from the new plant. Peter Untersperger, Chief Executive Officer of Lenzing AG said: "Our new second generation TENCEL® fiber production facility is a technological milestone for lyocell technology, and proof that we are several years ahead of all our competitors. It enables more than 67,000 tons of TENCEL® fibers to be manufactured p.a. by one jumbo production line. This significantly increases efficiency compared to the existing technology."

http://www.invista.com

http://www.lenzing.com

As of the end of 2014, total annual TENCEL® production capacity of the Lenzing Group amounts to about 220,000 tons manufactured at the Austrian sites in Lenzing and Heiligenkreuz, in Mobile, Alabama in the USA and in Grimsby, Great Britain.

The "Messe Frankfurt" registered a consistently high demand for biochemical fibres, reported in a communication to the Yarn Expo in its 2015 Spring edition. It says: „After receiving much positive feedback last year, the Chinese Fibre Pavilion will return once again in the Spring Edition with a highlighted zone to promote the usage of biochemical fibres: the Bio Fibre Zone. Unlike traditional man-made fibres which stem from crude oil, biochemical fibre is made with renewable bio materials. Commenting on the unique zone, Ms Wendy Wen, Senior General Manager at Messe Frankfurt (HK) Ltd, said: "Biochemical fibre will be the next hot product in China as developing renewable materials is a big focus of the country's 13th five-year plan that runs from 2016 to 2020." Besides the Bio Fibre Zone, more renewable fibres from nine exhibitors can be found in the Renewable and Recycled Zone. Different from products shown in the Bio Fibre Zone, the ones here are made in a low energy consumption and carbon emission production process."

With this we conclude our consideration of the improvement in sustainability for these various fibres. The examples described here show that there have been many attempts, some successful, to produce more sustainable fibres.

Nevertheless, it remains to be seen to what extent these fibres will achieve appreciable shares of the market, for example, up to 2030. The production of polyester has grown by 15 million tonnes every year from 1960 to 1990. At the moment it is hardly conceivable that the new, more sustainable fibres will grow in a similar fashion, even though 30 years is a period over which any crystal ball will come unstuck. In the short-term, we see that R polyester from PET bottles has the largest volume growth overall.

„Biochemical fibre will be the next hot product in China..."

Ms Wendy Wen, Senior General Manager at Messe Frankfurt (HK) Ltd

2015 will bring a lot of news on the subject of new fibres and fibre recycling. For example, the 23rd International Polyester Recycling Forum with the overall subject of “Latest technologies for the challenges of polyester recycling” takes place on March 4th 2015 in Bad Oeynhausen, Germany.

Amongst the speakers are Erwin Glawion from Truetzschler Nonwovens & Man-made Fibers on the subject of “R-PET fibers for Nonwovens “, and Dr. Wolfgang Ernst from BB Engineering GmbH on the subject of “Latest Developments on Bottle-To-Fiber Processes “. And also at ITMA 2015 “recycled fibre and yarn” will come into focus with their own sub-chapter – a development that recognises the increasing role of recycled raw materials in textiles of all kinds.

Textile machinery

Now we go one step further and come to the processing of the fibres along the textile value chain. Mechanical textile engineering celebrates its most important industrial exhibition, the ITMA, in Milan in November 2015. How importantly the manufacturers of textile machines view the subject of sustainability is shown by the motto of the fair: “Master the art of sustainable innovation”.

Because pioneering technical innovations are traditionally presented at the ITMA, and because participants like to keep their cards close to their chests at this time, we must direct our attention in this area above all to the future.

In particular, the German enterprises who have joined the VDMA “blue competence initiative“ for more sustainability, and the Italian enterprises, who have joined the ACIMIT “Supplier of sustainable technologies”, and who have certified their special energy-efficient machines with the “green label“ seal will provide new benchmarks in the direction of energy efficiency and environmental protection with their new machines and processes.

So in 2014, it was less about new machines but rather some very interesting news with regard to furthering the subject of sustainability.

For many years, **Oerlikon Manmade Fibers**, with its e-save fibre production strategy, has been a forerunner in sustainable production methods.

At the tenth anniversary of the Annual Meeting of China Textile Round-Table Forum, held on January 31, 2015 in Beijing Capital Hotel, Oerlikon Manmade Fibers Segment CEO Georg Stausberg presented to more than 300 participants the results of the exclusive study "Sustainable growth through value innovation". The study investigates the potential savings to the Chinese textile industry if outdated machinery were to be replaced with modernized technologies. Continuous development of Oerlikon Manmade Fibers technologies has generated high economical benefits that include energy savings, reductions in CO2 emissions, land savings and productivity increases.

„The study investigates the potential savings to the Chinese textile industry if outdated machinery were to be replaced with modernized technologies. "

Georg Stausberg, Oerlikon Manmade Fibers Segment CEO

Outdated filament spinning technologies in China currently account for 42% of the total energy consumption and CO2 emissions, but can supply only 16% of the total filament production.

With the latest technology, the specific average power consumption per ton was reduced by 55% (WINGS FDY) and 40% (WINGS POY) compared to outdated technology dating from the mid-nineties. If these machines were to be replaced with the latest Oerlikon Barmag equipment, the energy consumption would be reduced by 78 000 MWh and the CO2 emissions by 42 000 tons. "All in all, this study shows that Oerlikon Barmag's and Oerlikon Neumag's latest technologies can support China to reach the energy saving potentials and to support the people to have a better and cleaner living environment", said Georg Stausberg.

A very committed company in the field of sustainability is **Trützschler Spinning**, a German family enterprise and the market leader in preparation machines for short staple spinning. Blow room machines, cards, draw frames and combers are designed for maximum material utilisation and minimum energy consumption.

http://www.acimit.it

http://www.vdma.org

http://www.oerlikon/manmade-fibers/

http://www.truetzschler.com

Furthermore Truetzschler is very innovativ in developing of new machinery which shortens the production process on the whole. We would like to introduce three of their latest solutions with reference to sustainability. The first is the Trützschler Monitoring System WASTECONTROL which monitors the waste suction of the cleaners. The optical sensor distinguishes dirt particles and fibres. WASTECONTROL automatically determines the optimal setting of the mote knives. The second, the CLEANOMAT Cleaner CL-U is the only cleaner with dust removal module, motor adjustable cleaning elements and continuous control without stop-and-go. It is universally suited for all cottons. And last but not least the Integrated Draw Frame IDF. It is directly connected to the card in place of a can changer. The IDF sliver is ideal for feeding rotor spinning machines. The yarn is of higher quality and the production costs are significantly lowered through the elimination of the draw frames.

For years The Swiss **Saurer** Group was integrated into the Oerlikon Textile e-save initiative but they have had to reposition themselves since they have become Saurer again. In June at ITMA Asia in Shanghai the group has launched as part of the philosophy of innovation and sustainability the new E3 label for Energy, Economics and Ergonomics. In comparison to the Oerlikon e-save initiative, the factor “Environment” is missing here.

Rieter, also from Switzerland, became a member of the VDMA blue competence initiative in October 2014. The enterprise writes:“ As the leading supplier for textile machinery and components, Rieter focuses on low energy consumption and high raw material utilisation in the development of spinning machines. Customers thus profit from sustainably-producing machines. With its sustainability solutions, the Company fulfils the criteria of the VDMA sustainability initiative „Blue Competence“: with immediate effect, Rieter belongs to the circle of the „Blue Competence“ partners.” It’s been long overdue that Rieter, as a listed enterprise and a market leader, took the subject of sustainability seriously, and not only for the purposes of its own economic survival.
Over the recent past, Rieter has consistently failed to show a responsible attitude to the subject. Even the improved energy efficiency of their machines was quoted in their press releases as being solely beneficial due to their lower cost. One ought not forget that a more sustainable production is above all a re-education process leading to a fairer and more environmentally friendly society, and that purely economic considerations do not lead, as a rule, to the implementation of a more sustainable production. It definitely requires manufacturers to provide clear impulses that energy efficiency offers not only financial advantages, but that this is a single piece of a bigger puzzle. This having been said, it is a welcome change that now the enterprise is having a rethink under the guidance of new CEO Norbert Klapper.

„...with immediate effect, Rieter belongs to the circle of the „Blue Competence“ partners.“

Generally, the subject of sustainability does not seem to be in focus at many machine builders. Other subjects, such as productivity and automation, often dominate enterprise communication which also allows us to draw the conclusion that, for their customers, i.e., the textile enterprises, sustainability does not stand high on the agenda.

An example of the fact that this can also be seen differently is the German weaving machine manufacturer **Lindauer DORNIER**. The company came to ITMA Asia + CITME 2014 with the motto "The Green Machine" and presented themselves as a solution provider for a better environment treatment in the field of weaving. „We are happy to present our technological know-how of high-quality solutions at the ITMA Asia in Shanghai. We see ourselves as experienced partner to provide backing in Asia's environmental endeavors. Our mission is to make contribution to a more pleasant environment, said Mr. Peter D. Dornier, CEO of the Lindauer DORNIER GmbH.

„We see ourselves as experienced partner to provide backing in Asia's environmental endeavors. "

Mr. Peter D. Dornier, CEO of the Lindauer DORNIER GmbH

How sustainability can be practically realized with technical innovations with regard to machines is demonstrated by German manufacturer **Karl Mayer** with their warp knitting machines. The innovation reflects the fact that energy has different functions in the operation of a warp knitting machine: mainly the drive of the knitting elements but also the cooling of the components which must perfectly meet the specific requirements within a certain temperature range due to their material-conditioned features.

http://www.saurer.com

http://www.rieter.com

http://www.lindauerdornier.com

http://www.karlmayer.com

„KARL MAYER reduces the energy required in warp knitting by using machine components made from temperature-stable carbon fibers “

Karl Mayer

KARL MAYER reduces the energy required in warp knitting by using machine components made from temperature-stable carbon fibers – this is the commitment of the Obertshausen-based textile machinery manufacturer to the VDMA’ s “Blue Competence” sustainability initiative.

The machine parts of warp knitting machines should be solid and sturdy because they must withstand different effective forces. But the material properties of metals considerably restrict the freedom of mechanical engineering. The weight of the metal bars, the thermal expansion of the material and its limited stiffness restrict the machinery builder’s possibilities to increase the rotational speed of the machines for obtaining a higher output of textiles per hour. Carbon fiber reinforced plastic, so-called CFRP, is increasingly employed as lightweight construction material by future-oriented growth markets. A few years ago KARL MAYER also discovered the advantages of CFRP for the manufacture of components intended for its own warp knitting machines.

Due to its mechanical properties, CFRP clearly stands out from other plastics and metals. High tensile strength and stiffness as well as extremely low heat expansion along with a density of only 1.55 kg/dm³ are outstanding properties of this material, making it the ideal material for many applications. Components made from CFRP have 6 times higher stiffness and up to 8 times higher strength than aluminium, and this with the same weight. In this way, it is possible to reduce the component weight, at the same time achieving a high material rigidity and strength. CFRP offers minimum thermal expansion, the capacity to reduce the bar weight as well as high material stiffness and strength. On the one hand, these features ensure a considerable increase in productivity. On the other hand, this material also has a previously unequalled temperature stability, thus, offering the chance to extend the temperature tolerance range to 14°C for ensuring a trouble-free operation. Temperature fluctuations - which formerly resulted in machine stops or in adjustments of the rotational speed, thus, leading to increased energy consumption – can now be disregarded thanks to the CFRP technology.

And last but not least, the vibration damping feature of CFRP ensures a consistently high quality of the products which is especially beneficial to the customers. To put it in figures, the use of CFRP has the following advantages: increase in rotational speed by 30% and extension of the temperature tolerance range to 14°C due to the specific material properties of CFRP; 16% less investment cost and 26% lower energy consumption of the air conditioning system.

This approach is a very interesting starting point in increasing the energy efficiency of machines with the use of the most modern components from trendsetting materials.

Let us look at machines which are highly relevant to the issue of sustainability not only in terms of energy efficiency, but also due to their use of water and chemicals: Dyeing machines.

Oerlikon reported from the China Textile Round-Table Forum: „Another big environmental topic these days is the energy and water consumption as well as waste water pollution within the textile value chain. Especially the dying plants are in focus of the government due to the water pollution."

The enterprise that is setting new standards here is German company **Thies Textilmaschinen** which has been faithful to their motto "Go green with Thies". Over the past few years they have developed machines for thread and fabric dyeing which have high energy efficiency, low water consumption and the application of ecologically friendly chemicals.

„Especially the dying plants are in focus of the government due to the water pollution."

Oerlikon Manmade Fibers

After the successful implementation of the latest fabric dyeing machines iMaster H2O and soft-TRD SIII, Thies Textilmaschinen (Hall E6 Stand A 02) introduced its newest yarn dyeing machine in Shanghai: iCone. The new development consolidates highest ecological standards with technological intelligence to achieve tremendous savings in water and electricity consumption. The construction of the iCone is based upon the worldwide established eco-bloc series of Thies, but involves innovative new technologies. Its newly designed 'pump block' system allows dyeing with an ultra short liquor ratio. Depending on the carry-over of the material, liquor ratios of 1:3.6 in partially flooded vessels are performable in practice.

Improved rinsing functions allow the reduction of the after-treatment time by almost one hour. Moreover, the new 'suction pipe' design enables the adjustment of the flow reversal, namely from inside to outside and from outside to inside. iCone has been specifically developed to meet the requirements of stringent international and local environmental protection regulations with simultaneous consideration of its economic Efficiency.

The concept of dyeing the yarn immediately in the production process is also very interesting. Oerlikon Manmade Fibers 3DD polymer mixing technology offers the production of high quality spun dyed yarns for direct usage, eliminating the polluting dying step in the textile chain.

With the help of additive injection and mixing systems, masterbatches and additives can be introduced into the melt path at various points between the reactor and the spinning positions. Any number of units can be installed at one reactor spinning line. Depending on the position of the melt distribution pipework, the injection unit can feed additives into anywhere between 2 or more than 48 spinning positions. Today, units are already in operation in 2-, 4-, 12- and 24-position direct spinning lines. Thus, the variety of yarn to be manufactured simultaneously can be increased dramatically.

„Given a simultaneous energy saving of about 10% by heat-recovery systems would allow the saving of yearly 230.000 tons of CO2 in the Indian textile industry alone. “

Brückner

The Oerlikon Barmag range of products covers capacities of between 50 kg/h and 5,000 kg/h for the main polymer flow, with mixers with diameters of between 60 mm and 350 mm and capacities of 3 kg/h to more than 450 kg/h for the masterbatch polymer flow to be injected. If the feeding extruder is equipped with an additional batch metering unit, the capacity of the masterbatch flow can be as low as 1.0 kg/h. This also makes these systems suitable for supplying smaller lines with just two spinning positions, for example.

At the ITMA Asia, **Benninger** from Switzerland announced that particularly the Trikoflex drum washer and the BenningerKüsters DyePad BASIC achieve high CO2 savings as a result of reduced water consumption. The machines are key components of its customised continuous-processing solutions. According to Benninger the emissions should be 2/3 less than that of comparable exhaust dyeing.

http://www.thiestextilmaschinen.de

http://www.benninger.ch

Another process which uses a lot of energy and has high energy-saving potential is textile drying. The German finisher **Brückner** announced in March 2014 that they bring climate-friendly technologies to India.

They wrote in the press release: “As per today’s estimates India will be already in 2025 the most populous country in the world with 1.5 billion people. As emerging market it will undergo a similar development as China and the energy demand will probably increase disproportionately. On a global scale the Indian textile sector plays an important part. India produces 14 % of the worldwide textile yarns and fabrics corresponding to 60 billion m² textiles per year. 66 billion kWh thermal energy are required for this quantity which corresponds to a consumption of approx. 1.1 million tons of coal when this fuel is used. Given a simultaneous energy saving of about 10% by heat-recovery systems would allow the saving of yearly 230.000 tons of CO2 in the Indian textile industry alone. The prerequisite for this would be that all lines are provided with a heat-recovery system. Particularly in case of energy-intensive processes such as the drying or heat-setting of textiles and other materials present an enormous energy saving potential. Some years ago we began with a development project to show these potentials, the central point of which was to use a mobile heat-recovery unit in several Indian textile companies. The German Ministry for the Environment and Nature Protection (BMU) as well as the German Investment and Development Company (DEG) accompanied and subsidized this project.

The Ministry supports projects which serve to spread climate-friendly technologies in developing countries and emerging markets.

This project is intended to sensitize the decision-makers in producing companies and to train the qualified personnel. In the framework of this project we planned and built a mobile heat-recovery unit. This mobile heat-recovery unit has been installed for the first time at our customer Arvind Ltd. in Ahmedabad, India. The unit was several weeks in operation, the energy savings have been recorded and documented. At the same time, we used the opportunity to train the operators regarding the optimum production sequence and possible optimization potentials. As support for this first test phase we made a symposium in Ahmedabad for other interested companies. By and by we installed the mobile unit at a total of nine Indian companies to convince them of possible energy savings but also of the CO2 reduction in the production."

Another world maket leader in the field of finishing machinery from Germany, Monforts, is one of the very first companies in textile machinery sector participating in the VDMA's 'Blue Competence' Initiative.

Monforts says that they always places sustainability at the heart of business and sustainability is a major aspect of their R&D activities.

In particular energy management has been one of their primary goals for many years, driving them to develop resource-conserving and energy-efficient solutions. Of cause **Monforts** is one of the leaders in sustainability in the finishing segment by becoming the first company to offer heat recovery modules for dryers as a standard already in 2002. Their heat recovery system, the ECO Booster HRC, is completely integrated into the new chamber design of their latest stenter Montex 8000. For ranges up to 8 fields, only one ECO Booster HRC module is required. With some processes, up to 35% energy consumption can be saved. The calculation base is an 8-field stenter, nominal width 200 cm, 150g/m2 woven fabric, fixing process, 6000 operating hours per year. And the ECO Booster HRC is also available for retro-fitting of existing ranges. At ITMA Asia 2014 Monforts introduced the new Monfortex 8000 shrinking range to the Asean markets which makes a cut in water consumption of 40% compared with conventional equipment.

http://www.brueckner-textil.de

http://www.monforts.de

http://www.interspare.com

http://www.santex-group.com

Interspare, also a German manufacturer of dry technology machines, is currently carrying out a comprehensive study for its product lines Artos and Krantz, to determine how many existing systems could be retrofitted with the innovative EconAir heat recovery system and how much CO_2 could be saved worldwide each year as a result.

As a legitimate successor to Babcock, the company must check several thousand delivered units. In addition, the company relies heavily on its own sustainability in production, for example, by means of particularly energy-efficient buildings and power generation by solar systems.

The Swiss-Italian Santex group has another way to improve sustainability. In February 2015 the Santex Group announced that they cooperate with Solwa, an innovative Start Up that works in several “Green Technology” sectors for the environmental sustainability and the protection of natural resources, for more environment friendly solutions. Solwa is known for its modules to treat polluted and salty water powered by solar energy.

Solwa has developed intensive research on evaporation and optimization of fluid and thermodynamic processes, awarded by national and international institutions: the Gaetano Marzotto Prize, the "Innovation for Human Development" recognition of the United Nations, the "Enterprise Europe Award" final and the "Grands Prix de l'Innovation" participation, the MIT Boston Award as "Italian Innovation of the Year" to name a few. Stefano Gallucci, President of Santex Group, underlines "Solwa has a large market ahead, because it solves our Clients' environmental problems thanks to a system able to dry waste sludge and reduce greenhouses gas emissions. The innovation of Drywa, one of Solwa's systems to manage waste and pollutants, integrates Santex Group innovative machineries."

Textile chemistry

Now we deal with the manufacturers of textile chemicals and dyes who have made considerable efforts over the recent past conceptualising processes designed to increase sustainability. You can find more information regarding this subject in issue 1 from last year. For this reason we will only consider innovations created in 2014 here.

Let us start with **Archroma**, a global leader in specialty chemicals. In October 2014 the company announced, that they have entered an agreement to acquire the global textile chemicals business of BASF.

The business being acquired delivers products and technologies across the entire textile chemicals spectrum, with particular strength in printing, finishing and coating chemicals segments. The acquisition ideally complements Archroma's textile dyes and chemicals portfolio and geographical presence.

In addition, the acquisition will allow Archroma to reinforce its Textile Specialties team with a global specialist team that has an especially strong presence in Asia and other high growth markets. Through the acquisition, Archroma becomes a heavyweight in the textile chemical sector and assumes a special responsibility for extra sustainability. Let us see how the company deals with this new responsibility.

In June 2014, The ZDHC Joint Roadmap group, which today gathers 18 members, has published the "Manufacturers Restricted Substance List (MRSL)", a document that identifies the chemical substances banned from intentional use in facilities that process textile materials in apparel and footwear. The MRSL establishes the acceptable concentration limits of these banned substances in chemical formulations used within manufacturing facilities. Already in July, only one month later, Archroma announced the publication of its first formulation list of "ZDHC MRSL - compliant" colorants and chemicals for textile and apparel. "Archroma's formulation list of ZDHC MRSL-compliant products is probably the most comprehensive one that is available to textile manufacturers, brands and retailers on the market at this stage," commented Thomas Winkler, President Textile Specialties at Archroma.

„Archroma's formulation list of ZDHC MRSL-compliant products is probably the most comprehensive one that is available "

Thomas Winkler, President Textile Specialties at Archroma

And in January 2015 Archroma updates their "One Way calculator" with ZDHC MRSL-compliant products. ONE WAY helps mills and brand owners to develop innovative textile solutions that are both more ecologically and economically sustainable. The move will give textile apparel and footwear customers the time-saving advantage of being able to pre-select products that help, at an early stage in their selection process, to continue to drive down the level of impurities in the manufacturing process, which not only means on the final garment or fabric but also in the waste water.

All ONE WAY dyes and chemicals have been screened by Archroma's product stewardship specialists against more than 15 textiles eco-standards and criteria, including bluesign®, OekoTex®, GOTS, 20 of the major Restricted Substances Lists (RSLs), and other relevant criteria such as high bio-Elimination.

With "One Way", the 2020 "Joint Roadmap Toward Zero Discharge of Hazardous Chemicals" targets, a commitment and roadmap aiming at reducing the environmental impact of the textile industry,can be achieved today.

In November 2014 Archroma announced that they can offer nature-inspired clothing colors with full traceability. The chemical company combines the old and the new in a range of "biosynthetic" dyes for cotton and cellulose-based fabrics - EARTHCOLORS - which are derived from almond shells, saw palmetto, rosemary leaves, and other natural products.

EARTHCOLORS make use of agriculture waste products that would otherwise be sent to landfill. They can be used to provide rich red, brown and green colors to denim and casualwear. The new dyes, which Archroma describes as biosynthetic sulfur dyes, have been four years in the making. They have the overall performance of the company's existing range of sulfur dyes made from conventional raw materials. Archroma describes this new development as a step-change in dyes manufacturing and coloration technology.

To make EARTHCOLORS, Archroma transforms biomass from waste products of the agriculture and herbal sectors in a patent-pending process.

“Not one square meter of land is set aside to grow the raw material for these dyes, so there is no competition for arable land,” says Alan Cunningham. The new range is produced near Barcelona, Spain, with all raw materials sourced from within a radius of 500 km.

Another enterprise that has provided the textile chemical sector with many new ideas for sustainability is Huntsman Textile Effects. In January 2014 Huntsman Textile Effects and TJ Beall Company announced a joint effort to create a new generation of sustainable diaper composite layers produced from un-bleached (greige) cotton. ULTRAPHIL® CO is a novel development that combines Huntsman’s ULTRAPHIL® CO technology and TJ Beall’s super-cleaned greige natural cotton fiber, sold as “True Cotton®, for a functional diaper fluid management system. Current third party testing has shown that True Cotton® nonwoven fabrics treated with ULTRAPHIL ® CO outperform industry standard diaper topsheets in several major diaper performance metrics.

In June the company announced that GIZ, a German federal agency that promotes sustainable development around the world, and Huntsman Textile Effects cooperate to raise the bar for the textile industry in Bangladesh through chemical environmental management. In January 2015 Huntsman Textile Effects has extended its range of high-performance TERASIL® dyes to now provide economical, robust and reliable exhaust dyeing of polyester, polyester/cotton and microfiber and elastane blends. TERASIL® TC dyes exhibit very good application properties and are highly compatible, with a high standard of leveling performance and very good reproducibility.

„Not one square meter of land is set aside to grow the raw material for these dyes“

Alan Cunningham, Head of Textiles Dyes Marketing, Archroma

http://www.archroma.com

http://www.huntsman.com

http://www.novozymes.com

http://www.materialscience.bayer.de

They provide minimum sensitivity to reduction, good fastness to dry heat, good pH stability, good coverage of barriness and minimum staining on adjacent cotton fiber. These properties help mills improve efficiency and productivity to minimize rejections and achieve a higher return on investment. Compatibility with key industry standards and a complete color range further support textile mills to win and retain customers in a more competitive global environment. The new TERASIL® range comprises a complete set of intelligent mixes for dyeing medium to dark shades, with six colors currently available: yellow, orange, rubine red, blue, turquoise and black*.

The dyes fulfill OEKO-TEX® 100 requirements, are bluesign®-certified, and satisfy the Restricted Substances List (RSL) requirements of the major brands and the Zero Discharge of Hazardous Chemicals (ZDHC) Group.

And with the new ECOOL70 dyes introduced in February 2015 Huntsman addresses textile industry's sustainability challenges again. The eCool70™ concept makes it possible for mills to achieve a range of brilliant shades while using less water and energy for better environmental performance, lower processing costs and enhanced productivity.

http://www.oeko-tex.com

The concept persist of AVITERA® Brilliant Yellow SE, NOVACRON® Brilliant Blue EC-B and Brilliant Turquoise EC-GN. eCool70™ helps mills lower their energy consumption and processing costs by allowing dyeing and washing-off to take place at just 70°C (158°F), which is significantly lower than the 90°C that is necessary with conventional hot dyes. The wash-off cycle is also considerably reduced, which results in lower overall water consumption and shorter processing time to enhance productivity.

We could cite countless innovations from these and other companies but we want to limit ourselves to those already mentioned because they provide a useful spectrum showing how the chemical companies are attempting to increase sustainability: More ecologically friendly substances, less water use and lower production temperatures.

However, one more innovation from the company **Novozymes** should be mentioned. Their new technology offers cold bleaching to denim manufactures. Working with cold water and reducing the use of the chemicals, the solution quickens the denim bleaching process, and secures higher quality denim. The new cold bleaching solution is based on enzymes known as peroxidases, and this innovation is formulated to work without extra oxygen from either the air or water. This new peroxidase has a very rapid reaction speed - 90% of the reaction finishes within 10 minutes.

http://www.bluesign.com

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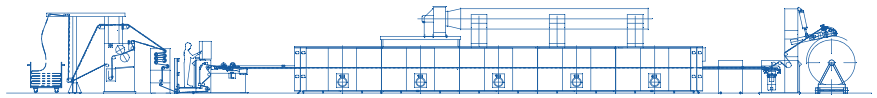
countries are there in the world where textiles are produced on machines of the brands Krantz and Artos. Small, medium and large-scale companies as well as world market leaders are using these machines to dry and finish woven and knitted fabrics for domestic markets and for export. But despite all the differences , there is one strong link: The people who work with our machines, appreciate the outstanding quality and flexibility we provide. This applies not only to the machines, but to our service and spare parts as well. We are happy to describe to you examples of the advantages of our machine design. Please contact us.

Machine programme and contact information under: www.interspare.com

iNTERSPARE
TEXTILMASCHINEN
ARTOS Krantz



Still the peak in finishing machinery.

At 20th January 2015 Novozymes announced its new corporate strategy, “Partnering for impact”. With this strategy, Novozymes reinforces its commitment to help solve some of the pressing global challenges facing a growing world. As the world leader in industrial biotechnology, Novozymes understands that biology can bring answers to some of these challenges. Pooling insight and expertise together helps find the sustainable answers needed. “It is important to focus on relationships that make a difference. We call it Partnering for Impact,” says Peder Holk Nielsen.

„Impact is about creating healthier foods, better climate, cleaner air, nature in balance or more jobs. “

Peder Holk Nielsen, CEO Novozymes

“For us, partnerships mean deep-rooted collaborations with mutual benefits and obligations. Impact is about creating healthier foods, better climate, cleaner air, nature in balance or more jobs.

And it is about optimizing a partner’s processes, creating new products or reducing their environmental footprints. Creating impact for our partners is often also a very direct way to better lives in a growing world.”

Certifier

Let’s take a brief look at two important certifiers.

In October 2014 bluesign technologies and Bayer MaterialScience have joined forces for a sustainable textile industry and want to advance their initiative globally. The two companies have agreed to enter into a strategic alliance for this purpose. The objective is to ensure safe production processes and working conditions along the entire value chain.

Bayer MaterialScience has had the waterborne polyurethane dispersions in its Impranil® line tested and certified under the bluesign® system. Textile manufacturers in search of chemicals with bluesign® certification can now find information on these products in the bluefinder database, that currently has data on some 5,000 chemicals used in the industry.

OEKO-TEX® unveiled in 2013 the new STeP by OEKO-TEX® certification for sustainable textile production facilities. STeP by OEKO-TEX® certification is designed for brands, retailers, and manufacturers from all sectors of the textile supply chain who want to validate their sustainable production in a transparent, credible, and clear manner that is consistent around the world.

After successfully certifying companies from Europe, Ökotex was also able to certify its first companies in Asia in October 2014 – in China and in India to be precise.

The fabric and yarn manufacturer Century Rayon, Shahad (a division of Century Textiles & Industries Limited, the flagship company of B. K. Birla Group of companies), has become the first textile company in India to be awarded with the STeP by OEKO-TEX® Certificate for Sustainable Textile Production. And Guangdong Esquel, the largest production campus of Esquel Group, has become the first production facility in China to be awarded with STeP by OEKO-TEX® certification for its sustainable textile production.

In July 2014, again at TexWorld, Oekotex presented MySTeP, a robust, secure database application that houses a textile product manufacturer's information related to its sustainable operations.

The MySTeP database facilitates private, transparent communication between customers and suppliers, ensures that regulatory compliance data are complete and up to date, and helps facility operators more easily manage the many components of a comprehensive sustainable production strategy that is both environmentally and socially responsible.

The new OEKO-TEX® API (Application Program Interface) further aids communication and data sharing via portals and cloud-based vendor management platforms.

„Consumer demand for textile products made in factories that operate with respect for their communities, their employees, and the environment continues to grow“

Dr. Haug, General Secretary OEKO-TEX®

"Consumer demand for textile products made in factories that operate with respect for their communities, their employees, and the environment continues to grow," says Dr. Haug. "The new STeP by OEKO-TEX® certification and the new MySTeP database give brands, retailers, and manufacturers throughout the textile supply chain a confidential, concise, and effective method for optimizing, tracking, and communicating sustainable production measures in a credible and transparent manner."

And in October 2014 the Swiss association launched another product label. "Made in Green by OEKO-TEX®" is a new certification for textiles proven to be safe in terms of human ecology and that are additionally produced in a sustainable and socially responsible manner. The label replaces the previous certification system OEKO-TEX® Standard 100plus and the Spanish mark "Made in Green by Aitex".

Brands and retailers

This brings us back to brands and retailers. These two groups in particular have made huge efforts in recent years to promote the sustainability of textile products. The establishment of the Sustainable Apparel Coalition (SAC) should be mentioned here. Nevertheless, one gets the impression that, for example, the retailers describe the issue of sustainability in their corporate communications as larger and more important than is currently implemented by the companies in its entirety. Let's take H&M as an example, because on the one hand, the company reflects the activities of many retailers and brands, but on the other hand it is also very advanced and active in many directions.

Since 2002, H&M has already released a CSR report, since 2009 it has been called a sustainability report and since 2010 it has been supplemented with the words "Conscious actions", probably to underpin the seriousness of the activities. The 2013 report covers 92 pages. Essentially, the company states all the challenges along the textile value chain, specifies where it stands, states the other activities and individual actions and states the objectives, where it is going. Everything appears very transparent with plenty of figures, however, it is still difficult to obtain an accurate overview of how much sustainably produced clothing is actually sold per year at H&M worldwide. Let's take a look at a few statements. "H&M used recycled polyester equivalent to 9.5 million PET bottles". "15.8 % of our cotton now comes from sustainable sources (2012: 11.4%)".

This sounds very good initially. Assuming an average of 10 PET bottles per garment, that is almost one million textile products. However, H&M sold more than 500 million garments in 2011 alone, which clearly puts that figure into perspective. And even that 15.8%, which at first sounds good, reveals, conversely, that 84.2% of the cotton used is not sustainably produced. Overall, it can be said that H&M has set out many points for improved sustainability, but that the majority of products is still not sustainably produced.

In the trading giant's current product range, too, the significance and scope of the sustainability efforts cannot be understood. At the time of writing, there are exactly 78 jeans products for women's trousers in the German online shop at H&M. Of these exactly 5 pairs of jeans have the note "CONSCIOUS", an H&M label for more sustainable production.

According to the details, 3 of these 5 models are manufactured from recycled cotton, 1 pair of jeans partially from organic cotton and 1 pair from organic cotton. In the 2013 sustainability report H&M writes: "11% of the materials we used to make our clothes were organic, recycled or other innovative, more sustainable fabrics".

„Our vision is that all our operations are run in a way that is economically, socially and environmentally sustainable“

Karl-Johan Persson, CEO H&M

Assuming a recycled cotton proportion of around 20%, this results in a total of around 2 – 2.5 ladies' jeans made from organic or recycled material. For 78 pairs of ladies' jeans, the proportion in this category is just 3% at this time. Of course, this is only a tiny section of the product range of one country, and the calculation is thus meaningless, however, in its own sustainability report, H&M raises very high expectations which should, at best, be confirmed in all product groups.

However, more interesting than the status quo are the H&M goals. The company has set itself the highest of objectives: "Our vision is that all our operations are run in a way that is economically, socially and environmentally sustainable." Two of these goals, which are directly related, are to "reduce waste" and "close the loop". Already in 2013 H&M had launched a global garment collection initiative.

"In early 2014, we launched the first products made with recycled fibres from such collected clothes", said H&M CEO Karl-Johan Persson in the report. But this is likely only the beginning. In an interview with the sustainability online platform 2degreesnetwork.com, Persson states the following additional goals: "We now aim to effectively take all those fibres and get them back in production.

Closing the loop on fibres is a big opportunity, and something that we're working on a lot with different innovation initiatives."

A further goal is to increase transparency by means of the Higg Index of the SAC. In an interview with 2degreesnetwork.com, Persson said: "Ideally, sustainability information should be readily available on garments. We hope that in the future the consumer will have access to the total sustainability information of a product just by scanning the tag with a mobile phone."

He most likely does not want to go as far as the Belgian fashion designer Bruno Pieters, as the pioneer in transparency. On his eco-fashion online platform honestby.com, founded in 2012, customers can access all material information and manufacturing details of a product: from the cotton field to the threads, buttons to cloth and from the spinning works to the sewing room. And to top it off, a price calculation of the production and distribution is also offered.

This is very transparent, extensive and perhaps even confusing. How many consumers want to perform extensive background research before making a purchase?

„Ideally, sustainability information should be readily available on garments. “

Karl-Johan Persson, CEO H&M

However, even a simple point system along the textile value chain could trigger huge repercussions in textile manufacturing. Anyone who provides too few points in their production step endangers the overall result and will struggle to remain a supplier.

But, it could be difficult in general to remain a supplier. In a list of the environmental impact on climate and water throughout textile production, H&M has the highest value of negative climate impact in fabric production at 36%, and is still at 6% for water. The raw material cotton is in the lead here with 87%. Incidentally, the consumer comes in second for climate at 26%, with cotton in third at 12%. Garment production, transport and sales are together responsible for 22% (6,6,10) of climate impact.

It therefore soon becomes clear what needs to be tackled. It needs to start with cotton. Here 100% of the cotton should come from more sustainable production by 2020. Organic cotton, recycled cotton, and BCI cotton are specified here. As described previously, H&M was the biggest purchaser of organic cotton in 2013.

„...fabric production has the highest value of negative climate impact at 36%,... “

H&M Sustainability report 2013

And subsequently in fabric production. On this H&M says: “Generally speaking, we do not have direct business relationships with mills but we work with organisations such as Solidaridad and NRDC to help mills improve their performance.

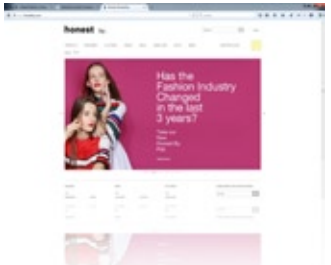
And we have already started to integrate fabric and yarn mills that are involved in making about 20% of our products into our supplier audit system, aiming for 50% by 2015.”

If this idea catches on, will other retailers and brands also integrate the textile mills in their audits, and what will be the consequences? If we follow the assessment by Oerlikon at the China Round Table, only very few companies would be at a level to deliver the best results.

http://www.hm.com

http://about.hm.com/en/About/sustainability.html

http://www.apparelcoalition.org



http://www.honestby.com

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ITMA 2015
www.itma.com

12 - 19 NOVEMBER
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MILAN, ITALY

ITMA, the world's most established integrated textile and garment manufacturing technologies showcase is set for its 17th presentation in Milan in 2015.

Innovation has always been an integral part of ITMA's DNA; it has been the world's leading platform for presenting the latest manufacturing technology since 1951. Sustainable innovation to drive growth for the textile and garment industry continues to be a strong focus at ITMA 2015.

ITMA is a unique showcase of the latest textile technology encompassing the whole production chain from spinning, nonwovens, weaving, knitting right through to finishing. ITMA 2015 will feature 19 key exhibit sectors, with renewed emphasis on Fibre & Yarn, Garment Making and Printing.

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Especially those who use ancient systems as profitable cash cows could encounter problems with their business model in this way. Will it become a battle of brands and retailers for the textile companies that can already produce sustainably or will be able to with reasonable investments? And what happens to those who cannot?

These remain unanswered questions, but the ITMA motto, “Master the art of sustainable innovation” is becoming ever more compelling. Anyone wanting to keep up with the development will need to invest. New findings on this will certainly be established at the second World Textile Summit, which, unlike in Barcelona four years ago, will be held in Milan during ITMA 2015 on 13 November. Supporting partners are the SAC, the Textile Institute and the Better Cotton Initiative.

The programme is yet to be announced, but the website worldtextilesummit.com already states the essential questions: “What returns can I expect from capital investment in resource-efficient technologies? How do I establish and monitor a sustainable supply chain? What are the growth opportunities that arise from a strategy based on clean production and sustainable materials? How do I manage the risks to corporate reputation?”

You may be wondering at this point how long it will take until we can say that we have predominantly sustainable production worldwide, but this question is difficult to answer.

The German Development Minister Müller established a Textiles Partnership in October 2014. An action plan was developed together with 70 representatives from the industry, from associations and from environmental organisations, which describes the goals which the Partnership shall work towards together. The aim of the Partnership, launched one-and-a-half years after Rana Plaza, is to achieve concrete improvements in social and environmental standards in the textiles and garment industry.

http://www.itma.com

http://www.worldtextilesummit.com

http://www.texi.org

http://www.baumwollboerse.de

„Even the worldwide enforcement of the European standards would be a major challenge for clothing manufacturers in other continents. “

Gesamtverband textil+mode

As a result, more than half of the involved companies and associations, which previously worked together, did not join the Partnership, because the action plan either turned out too far-reaching for them or they considered the implementation time to be too fast.

Adidas, Aldi, Lidl, Kik, H&M, Puma, C&A and the Otto Group backed out shortly before the start, and the major trade associations did not enter either. Representatives of the fashion industry and retail described it as “not ready for decision”, “unrealistic” and “not feasible” in many details.

For example, the German “Gesamtverband textil+mode” Confederation also announced on its website: “German and European companies are leaders in ecological production. Even the worldwide enforcement of the European standards would be a major challenge for clothing manufacturers in other continents. Demands in the action plan, which go far above this level, are unachievable in a reasonable period for many companies worldwide at the current state of science.”

This basically suggests that many companies may want to do this, and even define high and timely goals, but are not confident that they can make contractual concessions to this end. Around 30 companies and organisations were among the first signatories of the Textiles Partnership in the end. There are currently 49.

“Green” fashion

Looking at the bigger picture, it should not be forgotten that even today, there are many small labels and retailers offering completely sustainable fashion. This is not yet the case for all clothing and certainly not with 6-8 collections per year, but the offer continues to increase. In the denim sector, for example, companies such as Kuyichi, Mud Jeans or Nudie Jeans offer a large selection of jeans products at prices that can certainly compete with brands such as Mustang and G-star and due to the GOTS certification, are guaranteed to be produced sustainably from organic cotton. Retailers such as Glore (Global Responsibility) hold over 100 brands representing eco fashion, green fashion, or sustainable fashion.

http://www.bmz.de

http://www.adidas.com

http://www.c-und-a.com

http://www.otto.de/unternehmen/en/unternehmen/engagement.php

„Our two fairs spotlight fantastic labels and once again demonstrated their position as Europe's centre for modern green fashions."

Detlef Braun, Member of the Executive Board of Messe Frankfurt

And these small, true heroes of sustainability are organising themselves increasingly well and thus reaching more and more customers. Portals such as www.getchanged.net list green brands and show where they can be bought in the German-speaking region, both online and in stores. And with increasing success and growth, they also continue to put pressure on large brands and retailers, as they are gaining market shares in a growth sector.

The two trade fairs Greenshowroom and Ethical Fashion Show in Berlin, operated by Messe Frankfurt, demonstrate just how much the segment is growing. At the last edition in January 2015 163 international exhibitors (+30 percent*) from 23 countries and lots of visitors throughout the fair underscored the on-going process of expansion in the sector. "This has been a very successful and extremely impressive occasion", said Detlef Braun, Member of the Executive Board of Messe Frankfurt. "Here, the fashion industry has seen the quality and high degree of attractiveness achieved by eco-fashions over recent years. Our two fairs spotlight fantastic labels and once again demonstrated their position as Europe's centre for modern green fashions."

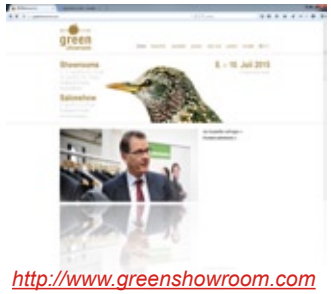
A clear indication for the international expansion of the green fashion sector was shown by the increasing number of countries represented at the two fairs. With 23 nations, the portfolio has become much more international. Particularly well represented in addition to Germany were the Netherlands, Scandinavia, Switzerland, Italy and Spain.

The opening ceremony with Dr Gerd Müller, Federal Minister for Economic Cooperation and Development, and Detlef Braun was attended by numerous well-known figures from the worlds of politics and business, as well as important representatives of the media. Right at the beginning of the fairs, visitors were given evidence of the way in which the Textile Partnership initiated by the Ministry of Economic Cooperation is developing with the introduction of a new member of the Partnership, the Bremen Cotton Exchange represented by its president, Ernst Grimmelt, which aims to contribute its expertise to the discussion on the implementation of improvements to social and environmental standards for the textile and garment industry.

http://www.mudjeans.eu

http://www.getchanged.net

http://www.glore.de



http://www.greenshowroom.com

Even the entry of the Bremen Cotton Exchange into the Textiles Partnership should make people sit up and take notice, as the biennial International Cotton Conference in Bremen always brings together the who's who of the global cotton industry and then, at the latest, it will be revealed whether and to what extent the German textile alliance can encourage people worldwide to "act differently".

Conclusion

This has been a very long journey through the activities and innovations for increased sustainability in 2014 and a brief look at 2015. Just the length of this report, which is still far from complete, clearly shows how versatile and pervasive the efforts in this textile issue are. It is certain that today already, there is every technical possibility to produce sustainably. The fibres are there, the machines, the chemistry, the reliable certifiers, and there's even the possibility to complete the cycle by means of recycling. Increased sustainability is thus becoming more and more a question of cost, willingness to invest and the will to take this route. For the individual businesses, the question is no longer whether to tread the path to increased sustainability, but rather when to do it. Preferably just in time.

Examples for „sustainable machines“

Karl Mayer: Cross-section view of a knitting place with CFRP bars

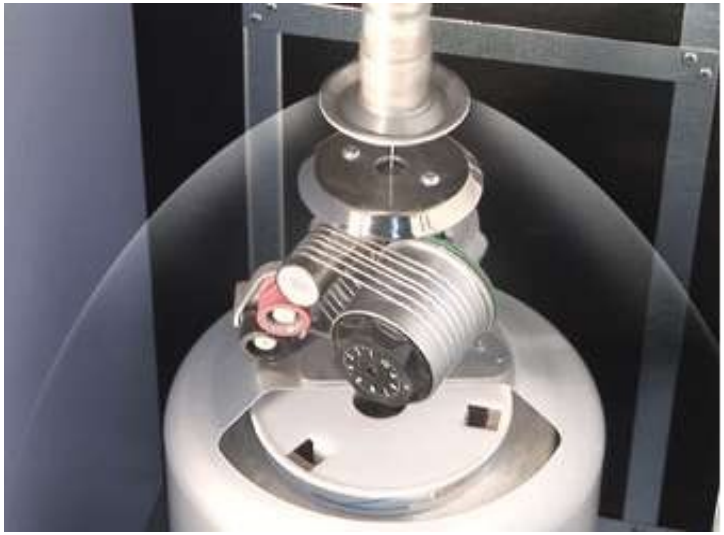
The Karl Mayer HKS 3 M machine equipped with CFRP bars

Lindauer DORNIER air-jet weaving machine A1 (Jacquard).
The new patented drive concept DORNIER SyncroDrive®
with energy class EFF1 motors increases speeds by up to 10%
with minimum heat development and the same energy requirement.

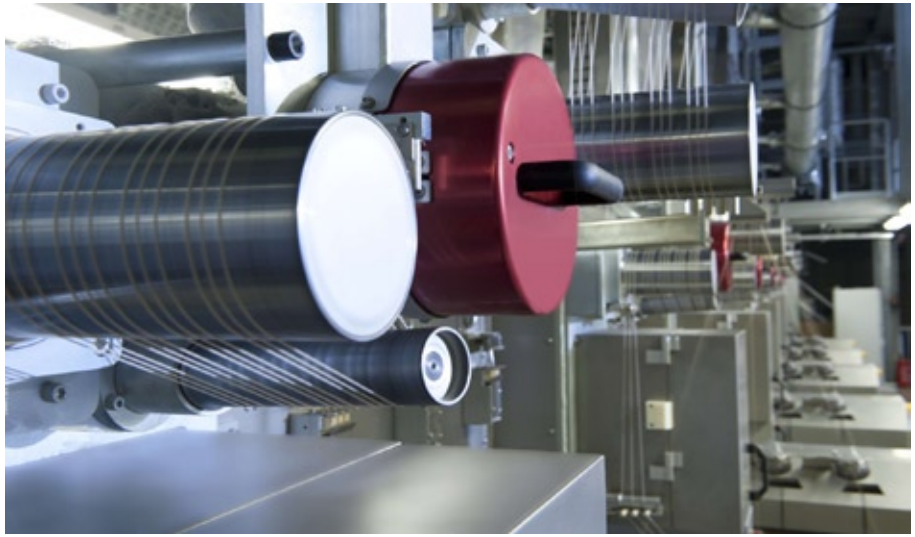
Examples for „sustainable machines“

The Saurer Allma CableCorder CC4 branded with E3

Oerlikon Barmag's WINGS POY



The CC4 offers up to 50% energy savings through outer yarn feed device



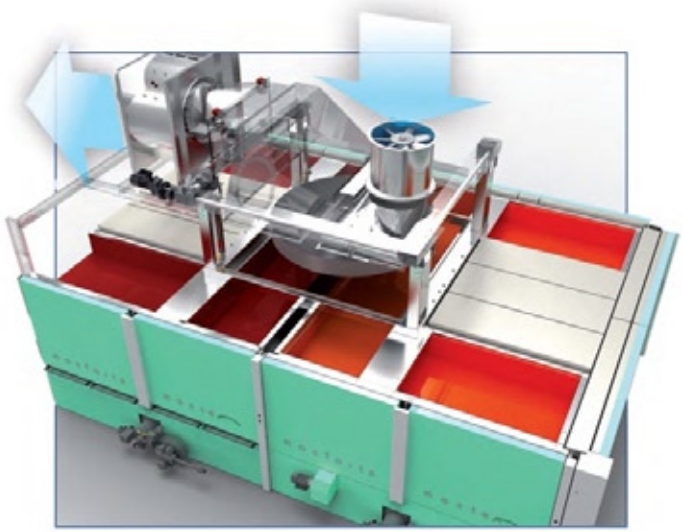
Oerlikon Neumag's RoTac3 has been granted the e-save label for particularly energy-efficient and eco-friendly technologies

Examples for „sustainable machines“

Brückner ECO-HEAT heat recovery system

Thies Textilmaschinen iMaster H2O

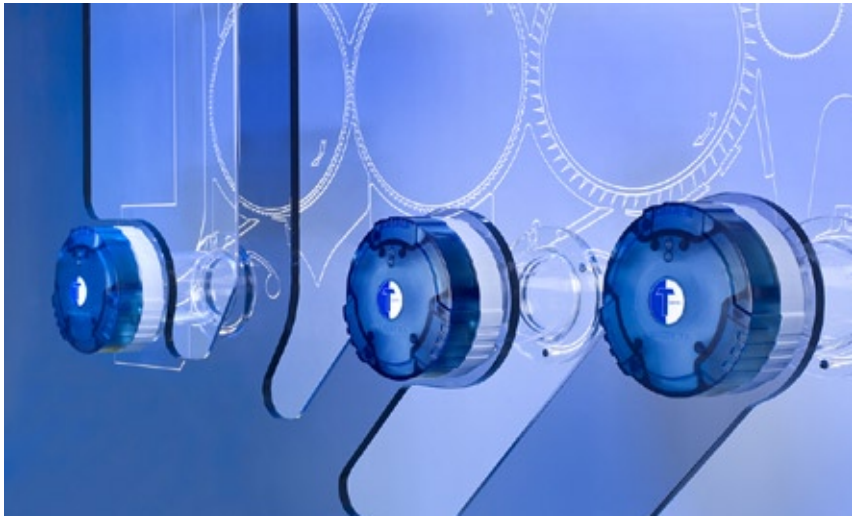
BenningerKüsters DyePad



Monforts ECO Booster HRC

Examples for „sustainable machines“

Trützschler Integrated Draw Frame IDF



Trützschler Monitoring System WASTECONTROL

Trützschler CLEANOMAT Cleaner CL-U

Interview with: Ms. Dr.ssa Raffaella Carabelli

President of ACIMIT, the Association of Italian Textile Machinery Manufacturers

“Italy’s textile machinery sector has a good head start over the competition.”

Since 2012, the subject of each first annual issue of our Texdata Magazine is sustainability. ACIMIT has attended to sustainability already in 2010 as you started the project „Sustainable Technologies“. Corner support of the project are „Supplier of Sustainable Technology“, „Green Label“ and „ Green Guide“. Could you please introduce our readers the project and the definitions.

Ms. Dr.ssa Raffaella Carabelli: The “Sustainable Technologies” project shows the commitment of Italian textile machinery manufacturers to seek out innovative and environmentally efficient technology solutions, with significant positive results for manufacturers who use these technologies, specifically in terms of reduced production costs.

The heart of the project is the ACIMIT green label: a document that aims to identify and highlight the energy and environmental performance specifications of textile machinery, referring to a process chosen by the manufacturer as a parameter for providing a comparison. In particular, the quantity of equivalent emissions of carbon dioxide (Carbon Footprint - CFP) produced during the machine’s operation is the parameter chosen to lend a tangible value to the machine’s environmental efficiency. ACIMIT’s registered trademark „Supplier of Sustainable Technologies“ is the symbol that identified Italian textile machinery manufacturers participating in the „Sustainable Technologies“ project, and who are therefore using the ACIMIT green label.

Moreover the Green Guide shows the project and introduces ACIMIT’s associated machinery manufacturers who have thus far responded to the call, adhering to the “Sustainable Technologies” project and thereby becoming “Suppliers of Sustainable Technologies”.

In cooperation with D’APPOLONIA, ACIMIT choose the carbon footprint as an essential key figure. At the press conference during ITMA 2011 in Barcelona, your precursor, Mr. Sandro Salmoiraghi, indicated the „green label“ as a beginning. How developed the „green label“ since then and what are the future plans for it? For example, will there be an extension of further key figures?

Ms. Dr.ssa Raffaella Carabelli: In 2012, the green label received its certification from RINA (www.rina.org), an international certification body that validated the green label’s issuing process and its measurement system. Based on a standardized and certified procedure, RINA verifies both the measurement parameters and operating conditions for the machines bearing the special labelling (every year on 20% of the manufacturers adhering to the project).

However, the road to perfecting the green label doesn’t end here. Photographing and measuring a production process does not of itself guarantee the quality of textile products downstream from the process. That’s why ACIMIT is already working to ensure that the green label can also provide guarantees for the finished product.

The road towards the qualification of textile machinery is a long and arduous one, but the Italian textile machinery industry is clearly in the front lines.

Sustainability also is an essential subject of ITMA 2015 in Milan and therefore for sure as well a central matter of all exhibitors? Will we experience a „great battle“ on „going green“ and how do you see the positioning of the „green label“ in this context?

Ms. Dr.ssa Raffaella Carabelli: Surely the issue of sustainability will be central to ITMA 2015, whose slogan is “Master the art of sustainable innovation”. With respect to the battle to become green, Italy’s textile machinery sector has a good head start over the competition. We began talking about sustainability well before many of our competitors. In a sector where anyone can call themselves “green,” we moved in to fill this need well in advance, in order to provide guaranteed and verifiable information to our machinery users through the green label.

Some of your certified members point out flexibility, cost reduction and productivity as a core message of their products and their communication on their website. Which leads to the assumption that sustainability is not yet the crucial criteria for a textile machinery purchaser. Which changes are needed from your point of view in order for sustainability to gain a similar importance for purchasers?

Ms. Dr.ssa Raffaella Carabelli: I believe things are moving along at a positive rate in this sense. For their part, machinery manufacturers have become more attuned to passing on the message that the use of sustainable technologies translates into greater competitiveness. However, throughout the industry, there’s now a greater perception that environmental and economic sustainability are travelling on parallel planes.

Are there any studies or other surveys on assignment of ACIMIT which point out the importance of sustainability for customers of your members?

Ms. Dr.ssa Raffaella Carabelli: In 2013, ACIMIT conducted a survey to verify the green label’s objective impact on the market, assessing initial feedback from machinery manufacturers who had already adopted it with their customers, as well as gathering ideas for its evolution. The survey highlighted a general interest from customers for ACIMIT’s project, and for the attention demonstrated by Italian machinery manufacturers towards these issues.

More highly structured textile producers, located primarily in Europe and Asia, have proven to be the most sensitive to Italy’s sustainability proposal. Moreover, the reasons for buying into sustainable technology are derived from the economic advantages generated by its use and/or regulatory obligations imposed in the countries in which textile manufacturers operate.

In your opinion: Why have textile companies to produce more sustainable? Or do you also have as a non-sustainable corporation a bright future?

Ms. Dr.ssa Raffaella Carabelli: However, an unexpected process has been under way in recent years. The evolution toward a more sustainable textile / fashion production chain actually isn't coming from the buying choices of consumers, as we might expect, but rather from an opinion campaign originating from fashion brands and major retailers. Through the Internet and their choices, they're the ones directing consumers towards sustainable products.

Adopting a reverse philosophy, these brands are requesting sustainable products: no toxic or hazardous chemical substances, full product traceability, etc. Within this context, compliance to a voluntary certification standard can prove to be a tool that is appreciated by big brand names in evaluating their own suppliers.

40 companies of your 160 members are supporting the project „Supplier of Sustainable Technology". Which is a remarkable initial, but why don´t participate more? Is the certification procedure too complex and expensive or what are the reasons?

Ms. Dr.ssa Raffaella Carabelli: Manufacturers who are "Suppliers of Sustainable Technologies" now make around 25% of our associated members.

Obviously, there's still a lot to do for the association in terms of promoting awareness among members concerning these issues, but ACIMIT does not intend to partake in any sort of green-washing actions. Those who adhere to the "Sustainable Technologies" project are required to sign a declaration of intent that imposes an ongoing commitment over time on this issue.

Also a lot of pressure on the subject of sustainability comes from the large brands and retailers. Some of the market leaders formed a Sustainable Apparel Coalition (SAC) and presented with the Higg-Index a software, with which designer ought to develop sustainable textiles already at the stage of product design. Thereby, the software evaluates the production plant regarding sustainability of the future production line. With the target to calculate the exact use of water, use of chemicals and carbon footprint for each product. This reaches very far into the core competences of the textile machinery manufacturers. Wouldn´t it be important, that these extensive calculations are agreed upon in cooperation with the large associations of textile machinery manufacturers like ACIMIT or even CEMATEX? If so, are there any initiatives yet?

Ms. Dr.ssa Raffaella Carabelli: The LCA for finished products in the textile and garments sector also includes analyzing production processes, which means the types of machinery used. As an association, we're ready to work with all parties and organizations who share this same commitment.

The involvement of all European machinery manufacturers, including Cematex, would thus be beneficial towards extending such a wide reaching project to all European textile machinery.

As a concluding question to this matter. What means the subject of sustainability to you personally?

Ms. Dr.ssa Raffaella Carabelli: My company was among the very first to adhere to the "Sustainable Technologies" project, at a time when I wasn't yet President of ACIMIT. FADIS has always worked towards reducing consumption and providing energy savings, with the aim of rendering products manufactured with our machinery more competitive. ACIMIT's project merely enhanced visibility to the ideas we had already begun to promote.

You are President of ACIMIT since June 2013 and head an organisation with approximately 160 members, which represent 300 companies and 12.000 employees of the Italian textile machinery industry. How satisfied are you so far with your term and which are the current and future challenges?

Ms. Dr.ssa Raffaella Carabelli: During these first two years as President of ACIMIT, I've sought to learn the "trade", as well as drawing on my own personal experience to make it available to the association.

From my own day-to-day experience, travelling to many different countries, I've come to the realization that Italian textile machinery brands are still little known.

This is especially true in markets that in the future will be important textile production hubs, which is why I've always stressed that ACIMIT's promotional activities should target these secondary markets, where we still need to increase awareness on the quality of our machine technology.

For the next two years, I believe we should continue in this direction, reinforcing our communications activities in order to affirm our Made in Italy as a worthy technology partner for textile producers around the globe.

Italy is the most important country for textile within the EU and the textile industry reported lately, for instance on the Milano Unica textile trade fair, quite positive figures including growth within production and export. Nevertheless domestic demand for new textile machinery has not restarted since the crash of 2011. Why do you believe this has to change- just at the home match in Milan?

Ms. Dr.ssa Raffaella Carabelli: Things are also changing in our domestic market. The latest figures from orders for textile machinery in Italy, processed by our very own economics department, for the last quarter of 2014, show a +34% increase over the previous year.

I believe a weaker euro and a more favourable economic environment in Italy can be important drivers towards a market recovery. The textile and fashion industry in our country boasts an age old tradition, and in spite of the recent negative economic situation, remains a leader in Europe.
I am sure that ITMA Milano will serve to provide a further boost for a full resumption of investments in Italy.

Last question. Why should visitors of the ITMA in particular attend the booths of the Italian textile machinery manufacturers?

Ms. Dr.ssa Raffaella Carabelli: Firstly, it's essential that ITMA is well attended. The visitors to the event will be the ones who will compare the proposals presented by the various exhibitors. Obviously, with the show being held in Milan, Italian firms will be stimulated to raise their bar in terms of innovative content proposed.

The figures speak for themselves: a total of 395 Italian exhibitors will be on hand, for an increased exhibition space of 50% compared to the 2011 edition. This aspect alone already gives us a clear indication of the importance Italian machinery manufacturers are lending to this event.

Interview with: Ms. Verena Thies

Managing Director Thies Textilmaschinen GmbH

“The generational change we have recently implemented means the enterprise is future-ready.”

At Thies you have almost made sustainability and environmental protection a product promise with the motto „Go green with Thies“. Would you explain to us how and why dyeing at Thies is greener?

Ms. Verena Thies: When assessing dyeing machines with regard to their overall energy efficiency, one must consider water consumption, the use of chemicals, the amount of waste produced, power and electricity consumption, as well as compressed air usage. Our machines are designed to conserve resources, making the advantages measurable in every application.

Since 2010 you have introduced three new machines with the iMasterH2O, the iCone, and the soft-TRD SIII, all of which maintain the „Go green with Thies“ motto. What is so special about these machines? Is there a sort of a master plan for the concept of „green machines“?

Ms. Verena Thies: We do, of course, developed machines which maintain our goods spectrum and the qualitative demands of our customers. In addition, the improvement of the energy efficiency of the machines is extremely important.

But the machines also have to be practical. And our iMaster H2O, our soft TRD SIII and our iCone all conform to these demands.

Are sustainability and environmental protection important subjects with buyers, and which subjects predominate when dyers want to purchase new machines?

Ms. Verena Thies: With high or increasing energy prices, environmental protection goes hand-in hand with saving operating expenses. Dyer‘s often experience desperate competition. With this in mind, return on investment calculations are carried out which consider production efficiency and the operating expenses of the machines.

Before the buyers consider the business aspects, it must be ascertained as to whether the selected machine type can fulfill all of the technical and processing demands.

We offer our prospective customers the opportunity to carry out test dyeing in our research institute in Coesfeld. There the different model types and / or different procedures can be tried out, as well as assessing the resource consumption.

The current Chinese Five Year Plan places special emphasis on environmental protection. At the “Annual Meeting of China Textile Round-Table Forum” that has recently been held, the Chinese government has said that they will be watching the dyeing industry due to the high level of water pollution produced by the industry. Is this demand perceptibly higher in China than in other countries?

Ms. Verena Thies: We feel that the Chinese market is in a state of flux. Environmental protection and operating costs are increasingly coming under the microscope, the technical requirements are becoming more demanding, and the automation concept requirements are also increasing. These developments have been heavily influenced by the FYP and the corresponding energy policies, but they are also being affected by the changing face of the employment market.

With regard to the "greener machine technology": Do you have a advantage over your competitors, and if so, what would that be?

Ms. Verena Thies: As I already mentioned, the advantages of every machine can be assessed and quantified. The consumption data speaks for itself. It is important to have a complete overview regarding consumption to get a „per kg of product" figure. If one regulates, for example, machine processing down so far to save electricity, process times would drastically increase, and a higher number of machines would have to be used to achieve the desired output capacity. Then the supposed advantage can quickly become a disadvantage.

Today, filament-polyester threads can be dyed during the spinning process. The procedure seems very environmentally friendly because, for example, a little additional process heat is necessary and the cleansing expenditure is easy to deal with. Must one call into question the entire thread dyer's trade and begin to search for new solutions?

Ms. Verena Thies: We have to constantly consider our product concepts critically. Regarding this point, we currently see many advantages on the side of discontinuous procedures:

Our yarn dyeing machines are much more adaptable when it comes to batch sizes. In addition, the full colour palette of the dispersion colorings, including brilliant and fluorescent tones, can be applied in contrast to the rather restricted options which spinning colouring offers. As well as colour correction, controlled application of Avivagen on the same unit is possible.

The cleaning of our yarn dyeing machines is a part of standard processing. There are no down times that have to be be included with a colour change for costly cleansing works. In addition, further yarn processing on our machines is easier, because with spinning, colourings pigments are used which can lead to a reduction in quality or thread tearing.

Our iCone, which was initially premiered at the Itma Asia in 2014, achieved notable consumption data with, for example, optimised stream characteristics within the unit, and the application of intelligent functions. Considerable energy saving can be achieved in comparison to conventional yarn dyeing machines. Customer reaction is already very promising.

Dye pad manufacturers see their dyeing solutions as effective resource savers with added sustainability. What's your opinion of this?

Ms. Verena Thies: Firstly you have to know exactly what the demands on the textile will be. The use of a discontinuous dyeing process is unavoidable if high colour-fastness is required, and „hold", for example, when processing terry cloth or velour. In addition, the area of application of our dyeing machines is relatively adaptable: They can dye not only a large variety of dimensions in a sustainable way, but also process a large range of different textile types. The necessary treatment steps are carried out on our dyeing machines in successive fashion: The material can be washed, desized, dyed and reprocessed on one and the same unit. For this reason, the entire processing expenditure is substantially lower in comparison to the dye pad procedure. It is also worth mentioning that discontinuously dyed goods must only be dried once, as a rule.

A view to the future. The ITMA is the sector fair at which innovations are introduced. Without giving too much away, can you give us a clue in which direction your innovation will go?

Ms. Verena Thies: This will, unfortunately, remain our secret until November. But I would be very glad if interested readers, and of course TexData, would visit us on our stand in Milan to access the appropriate information.

Will we experience a gigantic „green wave" at the ITMA, and what should the buyers' orientation be, in your opinion, with regard to distinguishing a genuinely sustainable innovation from „green washing"? Which measurable dimensions do you recommend?

Ms. Verena Thies: Though it means some expenditure, I personally would always recommend assessing the capital goods from ones' own production team with ones' own goods and operating procedures. Sometimes crucial learning effects arise – not only on the part of the customer, but also on the part of the manufacturer. In this case, the customer is aware of the real consumption data and can therefore prepare suitable projections for his own production planning. As I already mentioned, the production efficiency „per kg of product" should be considered with regard to the entire consumption to really understand the process.

In two years you will celebrate your 125th company jubilee. What is your secret as a German medium-sized company operating for such a long period so successfully in the world market?

Ms. Verena Thies: My family has always placed the greatest value on long-term business relations, in purchasing as well as in sales. Our customers can count on the fact that we are very well locally represented.

Above all, emphasis is placed on service as well as the machines and spare part sales.

In addition, we have a continual, multicultural core of employees who are highly effective and possess a lot of know-how and experience. Thanks to the previous generations we have the great luck that the enterprise is extremely solid financially, so that we were able to ride out the dramatic drops in sales during the economic crisis.

We continued our development work during crisis periods, so that we were continuously able to offer new developments. This created a certain product preference on the part of the customer.

In addition, the generational change we have recently implemented means the enterprise is future-ready.

You yourself have been Managing Director of the enterprise for some years. What part of your varied job is the most fun?

Ms. Verena Thies: I've been active in the management of Thies since the beginning of 2010, and I do enjoy my job. No one day is like the next. It is a matter of mastering new challenges over and over again within the group; for example, in the application of technology, in business, politically, or of a logistic nature. German textile mechanical engineering oriented to export is a sector that undergoes great volatility.

And why is sustainability important to you personally?

Ms. Verena Thies: I, or we, see ourselves as being responsible to the following generations, and to Nature itself.

The progress of the past 20 years in the dyer's trade sector, and in the whole textile mechanical engineering sector, has been huge. It's very important to me that the textile industry gets to know what an immense influence (quickly amortising) replacement investments have on the protection of natural resources.

Heimtextil 2015 showed an amazing range of new textile design products

Miss Germany Vivien Konca © 2015 Messe Frankfurt

With an increase of around three percent in the number of visitors, Heimtextil 2015 in Frankfurt am Main once again ensured the new furnishing season got off to a successful start. A good 68,000 trade visitors (2014*: 66,265) were very pleased with the high quality of the products and designs, and kept exhibitors busy throughout the fair. The 2,759 exhibitors from 68 countries (2014[1]: 2,714 from 62 countries) were no less delighted with the orders placed by buyers. The further increase in the level of internationality – from 87 to 88 percent on the exhibitor side and from 67 to 68 percent on the visitor side – also ranks as a success factor for the trade fair. “This has been the most successful Heimtextil for many years and means we have not only extended our lead as the world’s most important event for home and contract textiles but can also confirm the positive outlook for the economic climate. The significant increase in the number of affluent buyers once again demonstrates the high power of attraction exercised by our exhibitors and their products”, said a delighted Detlef Braun, Member of the Executive Board of Messe Frankfurt.

Showcased at Heimtextil were the new designs and technical developments for the soft furnishings of tomorrow. “As the leading international trade fair for home and contract textiles, Heimtextil once again impressed everyone as the world’s largest shop window for innovative designs. And the new ‘Theme Park’, in particular, with its numerous product displays from our exhibitors, made its own contribution to an experience of the state of the art in textile design,” reflects Olaf Schmidt, Vice President Textiles & Textile Technologies at Messe Frankfurt, looking back.

Martin Auerbach, Director of the Association of the German Home Textile Industry (*Verband der Deutschen Heimtextilien-Industrie*), confirmed that, “As the world’s biggest meeting place for the sector, Heimtextil is for us the most important indicator for the latest subjects, challenges and opinions in the worldwide market for home textiles.

At the fair, the German home-textile industry gave a clear demonstration of the flexibility, energy and creativity with which it is reacting to the massive changes and challenges in the international market. At the same time, our discussions with buyers, designers, artisans and retailers from all around the globe were once again an incentive and a source of inspiration.”

Particularly high level of satisfaction among international exhibitors

The good figures were also confirmed by the very positive results of both the visitor and exhibitor polls. 95 percent of all visitors achieved their goals for the fair (an increase of two percent compared to 2014), which underscores the high standard of the companies exhibiting at Heimtextil. Confirming this, Alessandra Ferretti, Export Manager of Jannelli & Volpi, Italy, said, “It was a wonderful fair. The visitors included all the right people and we registered more definitive business contacts than anywhere else. The echo from all parts of the world has been fantastic, especially to our new Armani collection.”

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. An increased number of visitors also made their way to Frankfurt from overseas nations, such as Japan and the USA. As expected, there was a decline in the visitor numbers from the Ukraine and Russia.

New ‘Theme Park’ trend area a great attraction

The new Heimtextil ‘Theme Park’ in Hall 4.0 proved to be a highly popular highlight – in the heart of the fair: “A clear and good trend show”, said Soizic Gilibert, proprietor and designer of Cosmic Zoo design studio from France. “I was able to gain valuable inspiration from the installations. Particularly interesting for me were the ethnic themes and the wide range of exhibitor fabrics.” In addition to the main parts, such as the ‘Material Gallery’ and the ‘Colour Pavilion’, particular interest was shown in the themed installations, such as the seven-metre high foot spa for the ‘hospitality’ segment and a 3D printer for making carpets in the ‘Technology Lab’. Virtual-reality glasses for the retail sector also offered new perspectives by showing ways in which retailers can present textiles virtually and thus create a symbiosis between online and offline sales.

Design Live – the biggest platform for textile design

Around 200 international studios presented their latest ideas at ‘Design Live’ in Hall 4.2, and once again formed the world’s biggest platform for textile design. All profited from the central position of the exhibition hall and from the great international interest in the unrivalled spectrum of designs to be seen.

Said Shohreh, proprietor and designer of Shohreh Textildesign, was very pleased with the visitor response and the course of business at the fair. “The concept for this hall is right. My new designs are primarily graphic, floral and structural, and they were well received. This year, there were fewer customers from Russia. Most came from Japan, China, the USA, Great Britain, the Benelux countries and Germany.”

‘New & Next’ – fresh design ideas for the bed, bathroom and table

Start-ups and young designers presented product ideas by the coming generation of designers in the ‘New & Next’ area of Heimtextil 2015. Their home collections in Halls 9.0 and 11 were distinguished by fresh ideas and original creations. In this connection, some companies are also using sustainable methods of production. “I am very pleased to have been able to show my work in the ‘New & Next’ area”, said Kirsten Wiegand of ‘Pude – sustainable home textiles’.

“My products are sustainable from A to Z, from the production to the packaging. I think it’s very good that the Heimtextil fair provides facilities and orientation aids on this subject.” Christina Eckert, ‘von Erika, nachbarin gestaltung Eckert&Deschner GbR’, was delighted with the great interest shown by visitors in the idea behind the products, the design, the quality and, in particular, the GOTS bio-certificate:

“Our visitors came from many different fields, for example, retailers, the press, interior designers, illustrators and bloggers. Some visitors came straight to us with a copy of the ‘Green Directory’ in their hands.”

The trends

Both in the newly created ‘Theme Park’, the new hot-bed of trends and inspiration at Heimtextil, and generally, throughout all the different product groups, colours have a huge role to play. The colours of this year’s collections are cheerful and cosy, and yet, in their gradations, demonstrate greater refinement and delicacy of touch than last year. Particularly popular at Heimtextil were light petrol, light green, flamingo and water-blue, accompanied, as a warmer contrast, by honey, copper and coral.

The more expensive the material, the more the design involved darker background colours in anthracite, midnight blue or mocha brown. The combination of black and white appears frequently, mostly as delicate outline patterning. More and more frequent are designs that involve colours flowing into other tones as they move up through the length of fabric or create a pedestal effect in another colour. The number of colours in which materials and wallpaper are offered is growing. To go with patterned fabrics, the majority of Heimtextil exhibitors offered plain fabrics in almost all relevant shades.

Attractive designs for every home

Flowers and blossoms continue to be the favoured motifs for fabric patterns – from informally scattered single blossoms and intertwined foliage motifs to giant individual blossoms the full width of the fabric. Animal motifs were also very much in evidence at Heimtextil, with butterflies more prevalent than anything else. These had appeared in great numbers the previous year. Decorative songbirds sit on sprigs of blossom and parakeets peep from behind palm leaves.

Feathers provide a new and attractive motif. Herringbone and houndstooth have developed a whole new charm in new combinations and unusual colours. Baroque motifs are equally subject to new interpretation and are often used simply as decorative edging. Many fabrics appear with delicate or more pronounced deep-grained texture, which lends them a particular charm, both to look at and to touch. Transparent and semi-transparent weaves are frequently matched with decorative fabrics in the same collection, but then again, also appear with their own, independent, impressive and intensely coloured patterning.

New looks for arm chairs and sofas

There was a sense of rejuvenation in the presentations of upholstery fabrics at the show: they appear for the new season in fresher colours and with more interesting patterns.

Even for traditional patterns, suppliers are risking unusual colour combinations, such as turquoise with dusky pink or black with yellow. Through a combination of matt and shiny yarns, both plain and tone-on-tone weaves acquire a certain wit and a special note. Almost all fabrics have textured surfaces – from fine ribs to luxuriant slubs. New weaving techniques and yarns enable highly sophisticated and hitherto unimaginable opportunities for patterning.

Offered in more and more collections are fabrics that are matched in terms of patterns as well as colours. They can therefore be used for various different items in the same seating area or for coordinated sofa cushions. Combining them, therefore, becomes an amusing pleasure. Many upholstery fabrics these days are easy-care and washable. Outdoor fabrics for the balcony, terrace and garden have, these days, become so cosy and decorative that they can happily be used both inside and outside.

Walls make a big impression!

The popularity of wallpaper is on an unstoppable upward curve. Customers have long since recognised that it is a very effective way of changing the whole atmosphere of a room with relatively little effort. The breadth of the new generation of wallpapers is almost infinite.

The scale goes from minimalistic plain faux-finishes and tiny patterns in mini-pearls to hammered surface effects; from flowers and blossoms in all sorts and kinds of style and size to banana palms that stretch to the ceiling;

from a surface with real bamboo canes, painted in bright colours, to water-lily leaves that have been dried, dyed and arranged to form the wallpaper surface. Stones, marble, driftwood, even whole irregular brick walls have been used as models. Traditional patterns such as houndstooth have been abstracted, presented in contemporary colours, and thus give an extremely up-to-the-minute effect. Many wallpapers appear three-dimensional because of the delicately sophisticated shading of the pattern. This effect is even stronger for those patterns that have a slight relief to them and thus lend the wallpaper a degree of plasticity and depth. For everyone who likes things just that little bit niftier, there are some interestingly shaped plastic components, which can be arranged to make decorative wall coverings, thus creating colourful arrangements completely at will.

Elegance beneath one's feet

The palette for carpets and rugs is full of colour as never before. Favourites, as ever, are cosy carpets with velvety surfaces in muted colours. They often have a strip round the edge in a different colour. Alongside this, Heimtextil showcased lots of narrow-ribbed textures in monochrome or two-colour versions. The 'used look' remains popular: many of the carpets displayed patterns and colours that were slightly faded. Kelims remain a regular feature of exhibitors' collections, with both traditional and modern designs. When it comes to the patterns for new carpets, the range extends from ornamental baroque revivals to mosaics, stripes, checks and spots and even carpet-sized giant blossoms. Frequently displayed at Heimtextil were carpets with super-sized plaits or interlaced patterns.

New amongst the exhibits were two-colour cotton rugs and carpets in calm, classic stripes or checks in delicate or luminous colours.

Lots of variety for curtain poles, tracks and passementerie

The rustic and over-romantic phase is on the way out. The new curtain poles and tracks for the window are inclined to be more elegant and retiring and are made of stainless steel, aluminium, chrome, brass and painted metal. Poles are more frequently offered in black or blackish-brown.

New on the scene are some particularly handsomely shaped, high-tech looking curtain rods – as are some that can be used simply as finials and end-pieces. One that is particularly striking is a new, very delicate ceiling mounted pole, where the distance from the ceiling can be adjusted.

It can also accommodate minimal distance between the pole and the ceiling. Tie-backs and passementerie have adapted to fit in with the trend in curtain poles and are relatively muted in terms of form, colour and material. Elegant gallery-type rods in aluminium, from which to hang pictures using nylon threads, are now being offered in a variety of variations, including one version which is practically invisible and will disappear into a plastered wall.

Tailor-made for the window – roller, vertical, Venetian and panel blinds

To protect our privacy and give shade from the sun, there is now an endless number of fabrics, patterns and colours available, all made to fit exactly the customers' windows by the Heimtextil exhibitors: from delicate voile and decorative materials of all kinds to blackout weaves which exclude the light completely.

For the blackout fabrics, the blackout effect is not infrequently enhanced by the use of a black coating on the reverse surface. Amongst the ready-made window decorations, the ones that score highest are the pleated blinds, particularly those with a honeycomb effect.

In the pipeline for the spring is a new pleated blind system, which is also suitable for outdoors, made with robust, weatherproof technology and fabrics, which are resistant to both the sun's rays and to moisture. Particularly successful are also the so-called 'double blinds', made from two panels of cloth that roll up one behind the other, with alternating dense and translucent stripes.

This enables the amount that can be seen through them and the amount of light they let through to be adjusted entirely as the user wishes.

Bright and colourful for the bathroom

Bathrooms of the future are becoming more colourful than they have ever been before – if we are to believe the range on offer from Heimtextil exhibitors. Some of their number are selling hand towels in no fewer than 40 different shades. Colourways include bright, luminous tones with a Mediterranean feel, such as azure blue, egg-yolk yellow, raspberry red, mandarin and turquoise. Or oriental colours such as midnight blue and copper, petrol and jade green.

For a more feminine bathroom there are textiles in pale pink, light grey, celadon, pale lilac, not infrequently set off with Swarovski stones. Where patterns are intended to appear bolder and more masculine, grey, midnight blue, anthracite or black are used – colours which are then mostly subtly lightened with a mix of white or greige. Stripes, checks and abstracted baroque ornamentation, oriental paisley designs, kelim-style decoration, cool-looking, imitation wild-animal skins and edgings continue to be popular as design motifs. Alternatively, designers also take their inspiration from the imagery of the great painters like Gustav Klimt.

Bathrobes are part of almost all collections. They are made from terry towelling, cotton with a towelling lining, from velour or – a definite new trend – from highly textured honeycomb piqué. Both women's and men's 'sauna kilts' have recently come to be offered in a large number of attractive colours, for women in both knee-length and calf-length versions.

New fibres have been developed and are now being used, to give better water-absorption and more rapid drying. The lighter material that can be made with such fibres means that the bathrobes made from them are more comfortable to wear. Several manufacturers are also offering additional accessories such as toothbrush mugs, soap dishes, small waste bins, as well as shower curtains in the same colours or with the same patterns as their towels and towelling wear.

Sweeter dreams

In the bedroom, too, the rule is: when it comes to bed linen, ‚floral' is the thing to have. And the range of patterns is greater than ever before. Delicate petals float over the bed covers, little posies are rowed up prettily next to one another, huge blossoms provide bold, in-your-face fabric decoration or an all-over design. Graphic designs, too, are subject to more interesting variations. Alongside plain stripes and checks for ‚young beds', there are also lots of designs with sporty and elegant overlaid check patterns or linear designs. New, this year, is patterning with a mosaic character, which provides playful or architectural accents, depending on the colour. Rediscovered at Heimtextil as a form of decoration is a delicate shepherd's check in an elegant colour duo. Also popular amongst traditional patterns is baroque foliage, medallions and oriental paisley designs, predominantly in more subdued, tone-on-tone colours. Like the decorative fabric panels, bed linen, too, can be found with a pedestal design – or with patterning only on the upper section of sheets and bed covers.

A more frequent discovery is the large decorative pillow, often embellished with embroidery, designed as a deliberate adornment for the bed. Bedspreads are lighter and airier. They are often coordinated with the bed linen in terms of both pattern and colour. Plaids and blankets are presented in rather nobler, discreet colours (particularly popular is a pale jade). And for those with a taste for it, there are also more eye-catching things like the blankets with wild-animal patterns in stridently dyed velvet or artificial animal skins in luminous colours.

People eat with their eyes as well as their mouths

The exhibitors at Heimtextil have made a point of bearing the wisdom of this old saying in mind. And for good reason: consumers want their dinner table to be a feast for the eyes – and not just on high days and holidays, as they once did, but every day. Textiles for the table impressed everyone this year, particularly because of the bright, summery colours, ranging from the lightest yellow to the darkest aubergine, often including more than 20 shades in a single item. For a rather more elegant ambience, there are table textiles in white, cream, grey or muted pastel shades, often in transparent material and decorated with embroidery. Linen, above all in beautiful, natural shades, is to be found in more and more collections. As in the case of soft furnishings and bed linen, floral designs are also the great favourites for the dinner table – with carefully drawn scattered flowers, faded water-colour effects or with large, theatrical blossoms.

Alongside these, graphic patterns fight their corner with strictly delineated, loosely inter-connected checks or a Mediterranean tile design. 'Table linen' in a collection consists mainly of table cloth, table runner, a table set or napkin set; not infrequently, however, it is also taken to include aprons, tea towels and the metalware for blinds and curtains. The animal world, which is, after all, a provider of nutrition, has found its way into the kitchen big-time, with original artist's drawings of fish, rabbits, hens, stags and wild boar for table sets, tea towels, oven cloths, bottle covers and chair cushions.

Digital printing – efficient, flexible, sustainable and future-oriented

Something that was impossible to miss on the exhibition stands at Heimtextil 2015 was the range of decorative fabrics, bed linen and wallpapers that have been produced in a digital printing process. The advantage of this technique lies in its speed of use, its photorealistic quality of reproduction and the use of particularly large, repeat-pattern templates. Not to mention the frugal use of resources with a sparing use of coloured inks and dyes, which is a clear plus for the technology. The templates can equally well consist of photos or sketches.

The boom in the digital-printing segment continues unabated with the quota for digital textile printing expected to rise to five percent by 2017.

In view of this, more room was made available for the subject at Heimtextil 2015. Thus, key players such as Epson Europe and Hewlett Packard, were located in an eye-catching, future-oriented setting in Hall 4.0 – in the heart of the Exhibition Centre and in the immediate vicinity of the new 'Theme Park' trend area.

"We welcomed an extremely international body of visitors and held good discussions with companies not only from Europe but also from Australia, Asia, the USA and Latin America", said Richard Barrow, Senior Product Manager of Epson Europe.

"The Digital Print Area attracted visitors who are particularly interested in the latest design and product-technology developments." In this connection, digital printing still has an enormous potential and – thanks to its contribution to more sustainable production through faster printing processes, significantly better colour fastness, resource-friendly technology, dyes with eco-quality labels, e.g., GOTS – it is still in the early stages of market expansion.

(Digital Printing is the top theme of the issue 3 / 2015 of the TexData Magazine.)

Naturally sustainable

Sustainability is nowadays an integral aspect of the products and services at Heimtextil. Both exhibitors and visitors appreciate the orientation aids provided, such as the ‘Green Directory’ and the ‘Eco Leaves’ on selected exhibitions stands, which help them find products with an ecological background.

This year, the spectrum of activities oriented towards sustainability at Heimtextil was supplemented by the ‘Green Village’, a platform for label organisations, auditors and interest groups in this segment. The ‘Green Village’ provided visitors with information and brought greater transparency to the label landscape.

Heimtextil to begin a day earlier from 2016

The next Heimtextil in Frankfurt am Main will take place from Tuesday, 12 January, to Friday, 15 January 2016. it will begin and end a day earlier. With this change, the Heimtextil management is complying with the wishes of many exhibitors and visitors.

Carim Raashid

4.0 Theme Park - Campus Workshop (c) Messe Frankfurt Exhibition GmbH / Pietro Sutera

Bathroom „Kleine Wolke Textilgesellschaft“

Peter Micheal Kressmann, Barbara Becker, Frank Lachmund

Jette Joop

Harald Glööckler

DOMOTEX 2015 showcases countless textile innovations

When the DOMOTEX 2015 closed its doors in January, the event organisers, exhibitors and visitors were all agreed that the Domotex had made successful progress along the path of innovation and renewal it had charted out the year before. The most important event in the international carpet industry was once again very well attended by all the relevant market players - from designers to machinery manufacturers - with the aim of laying the foundations for the forthcoming business year. And surprisingly, countless innovations were presented in each one of these fields.

Also noteworthy was the positive atmosphere fostered by the progress achieved in making textile floor coverings a “must have” for every home, indeed for every room. Even as a journalist assigned to looking around and reporting on the event, you almost felt tempted to purchase a carpet amidst all those elaborate and inspirational patterns and colours.

But let’s get back to the facts.

DOMOTEX 2015 attracted some 40,000 visitors from 100 different countries. Total attendance was thus slightly higher than for the most recent comparable DOMOTEX in 2013. The majority of visitors came from European Union countries. A significant upswing was noted in attendance from the Middle East and South, East and Central Asia.

This year’s DOMOTEX visitors were also highly qualified, with approximately 90 percent reporting they either were buyers or involved in their companies’ purchasing decisions, and that they had come to Hannover with specific investment plans. More than 70 percent of all attendees were senior executives. The event was also a magnet for buyers from the interior decorating and furniture trades, and attendance on the part of skilled tradespeople and retail professionals was up over the most recent comparable show held in 2013. A rise in attendance was also noted for architects, interior designers and contract business professionals.

Innovations, inspiration and sales – those are the words that best summarize DOMOTEX 2015. The world’s flagship trade fair for carpets and floor coverings served once again as the No. 1 meeting place for a vibrant sector and its clientele. Following four action-packed days, the show’s organizers at Deutsche Messe declared a solid performance for the event. Its highly international mix of exhibitors and attendees as well as the success of the special Innovations@DOMOTEX showcase underscored the tradeshow’s reputation as a global magnet for decision-makers and a prime venue for unveiling new innovations.

“We are delighted with the show’s performance. It had everything: a highly attractive lineup of exhibitors and products, solid attendance figures, high-caliber trade visitors, a great many innovations and a highly international mix of exhibitors and visitors. This is something which was immediately evident – at every stand, in every hall,” said Dr. Jochen Köckler, the Deutsche Messe Managing Board member in charge of DOMOTEX.

"This year's DOMOTEX got international trading off to a splendid start, and has given the carpets and floor coverings industry every reason to be optimistic about the year ahead," he added.

World's largest display of carpets and floor coverings

DOMOTEX 2015 was staged in a total of 12 halls, making it the world's largest display of carpets and floor coverings. 1,323 exhibitors from 63 different countries were on hand to demonstrate their creativity and skill, and over 85 percent of these exhibitors came from abroad.

DOMOTEX literally "floored" its audience with a stunning array of innovations across the featured product categories: resilient and textile floor coverings, parquet and laminate flooring, woven and tufted carpets and application and installation technologies.

In the words of Dr. Köckler: "The focus at this year's DOMOTEX has been on unconventional materials, newly interpreted designs and state-of-the-art manufacturing technologies. Sustainability has also been a key issue. One impressive trend observed is the comeback of the Persian rug as a trendy, contemporary ingredient of interior design."

Upbeat mood throughout the halls

DOMOTEX 2015 was also clearly a success from the industry's perspective. "For us, DOMOTEX is an ideal place to meet up with our customers and generate new leads. Here in Hannover, in the course of just a few days we are able to reach a global audience with our innovations," said Johannes Schulte, President and Chief Executive Officer of Vorwerk Teppichwerke, based in Hamlin, Germany. Alex Jauregui, Senior VP Carpet Business at Mannington Commercial of Calhoun, Georgia (USA), also gave a thumbs-up to the outcome of the show: "Again and again, DOMOTEX is the sector's best meeting place. For us as a U.S. company, it is absolutely essential to exhibit here at the sector's leading event, for this is where we can reach our customers. DOMOTEX also excels at enabling us to find new business partners."

Innovations@DOMOTEX a major attraction

Following its successful debut last year, the Innovations@DOMOTEX showcase was a great success again in 2015. One of the special highlights consisted of the Innovations@DOMOTEX areas, designed as a compact and clearly laid-out showcase for 70 outstanding innovations in textile and resilient floor coverings, parquet and laminate flooring, plus contemporary handcrafted carpets and rugs.

For the first time, these three special areas also included innovations in application and installation products and services.

Also in great demand were the Guided Tours, with architectural and interior design experts presenting a selection of exhibitor innovations, as well as the Innovations@DOMOTEX Talks, which highlighted key industry issues.

Top international designers like Stefan Diez, Roberto Palomba and Ross Lovegrove were on hand to take part in panel discussions, lectures and Guided Tours, further boosting the status of DOMOTEX as a key source of new inspiration for architects, designers and planners.

In the words of Roberto Palomba: “Innovations@DOMOTEX puts a completely new spin on visiting the fair. Attendees not only receive welcome support with finding stands of interest to them, but are even guided from highlight to highlight. At each stand they are treated to in-depth explanations and demonstrations, enabling them to gather a maximum of valuable information in a minimum of time.”

DOMOTEX highlights in the carpet sector

The Dutch-based **best wool carpets** presented pure virgin wool flooring with a veritable explosion of color.

With its exclusive Hospitality series, the carpet manufacturer showed just how fashionable and colorful carpets made of 100 percent pure virgin wool can be. For orders of 100 square meters (about 1,076 sq. ft.) or more, the company can supply its wall-to-wall carpeting in absolutely any pattern and shade in the range. Custom designs can also be arranged. Its Rugs range is just as amazing. Customers looking for something to liven up their wood or stone living room floors can pretty much design their own rugs. And that doesn’t just mean dimensions. Customers can also choose the rug structure, pattern and style and even the border material.

Beaulieu International Group displayed their ultra-high-quality synthetic turf which looks and feels like grass. This verdant banisher of lawn mowers is available in a range of color shades and lengths. Made from polyurethane, it’s virtually indestructible and can even handle temperatures as low as 20 degrees Celsius (-4°F) without batting an eyelid. Even better: the artificial lawn product now also comes in a fire-proof variant, aptly named Xtinguish.

Dream Rug, an Iranian company, showcased machine-made rugs from Kashan, the capital of Persian rug making, that most people can barely tell apart from the hand-made creations on which they are modeled.
They feel like they’re made of wool, whereas in fact they’re made of Dralon acrylic fiber. And with between 250,000 to 1,000,000 knots per square meter, they are almost as densely woven as their hand-made counterparts. What’s more, they each incorporate between eight to ten colors, so they’re a close match for the real thing in terms of visual splendor as well.

"The rotating tangle unit RoTac³ means an energy-efficient, very uniform tangling at high speeds. The compressed air consumption can be reduced by up to 50%."

Mathias Stündl
Head of BCF Development Department
Oerlikon Neumag

S+ RoTac³
The Future of BCF Technology

Tangling BCF yarns generally has the purpose of preventing loop formations during tufting and weaving. Furthermore, tangle knots ensure a uniform appearance of the finished carpet, especially with tricolor yarn.

- Up to 50 % less compressed air through pulsating air flow
- Uniform tangle knots also at high production speeds
- High process stability through a gentle yarn guidance

High energy consumption not only causes high costs, it also puts the environment at risk with a lasting effect. The RoTac³ achieves both: cost optimization and environmental protection. That's why RoTac³ is e-save labeled.

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Dutch company **Edel Group** presented Ceneva - the world's first carpet backing that does not contain styrene-butadiene. The final step in the manufacture of tufted carpets involves the production of the carpet backing, which fixes the carpet fibers to the base cloth and improves the carpet's lifespan. Conventional carpet backings contain styrene-butadiene rubber (SBR), which exudes an unpleasant rubbery odor and has raised concerns around toxicity and environmental friendliness. Ceneva represents an innovative alternative because it is based on vinyl acetate ethylene (VAE) and 100% SBR-free. VAE offers a number of key advantages over SBR: it is odorless, it emits far fewer volatile organic compounds and it is less flammable.

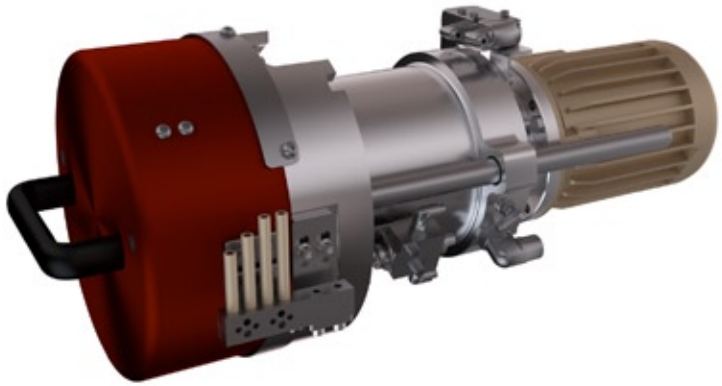
danfloor exhibied the ECONOMIX range of carpet flooring for the healthcare sector and brings the pleasant qualities of textile floor coverings to these challenging environments. The carpets in the ECONOMIX range are made from high-performance nylon fibers consisting of 100 percent recycled polyamide.

Designed to reflect the latest color trends, ECONOMIX helps to create impressive interiors that also meet the very highest hygiene standards. Thanks to the textiles' waterproof backing, the flooring can be given a wet deep-clean without any risk of the moisture penetrating into the subfloor. In addition, the surfaces feature an anti-microbial treatment and stay totally colorfast, even when subjected to strong cleaning materials.

In addition to innovations in textile floor coverings, there was a much-admired innovation in the field of textile machinery intended for manufacturers of these products or, to be more precise, for manufacturers of carpet yarn. The German company **Oerlikon Neumag** caused a sensation at the exhibition with its rotating tangle unit RoTac3, as this pioneering invention represents nothing less than the future of BCF technology. RoTac3 offers a whole range of major advantages for the manufacture of BCF carpet yarn using the 3-end plant S+. These include significant energy savings, which not only help to reduce costs, but also facilitate more sustainable manufacturing methods.

Oerlikon Neumag - RoTag3

The tangling or intermingling plays a decisive part in the production of BCF yarns. Through the tangle knots, loop formations are prevented when tufting and weaving the carpets. Furthermore, they also define the colour mixtures of tricolor yarns and thus enable a homogenous appearance of so-called tricolor carpets. The constant increase of productivity respectively, the process speeds implicated increasing demands on the tangling, resulting in higher air pressures and a double tangling unit. The compressed air consumption significantly increased. Additionally, so-called tangle dropouts occurred at very high process speeds. „The RoTac tangle unit has been the effective solution for the single-end BCF plant Sytec One since 2012. In the meantime, practically all Sytec Ones are sold with the RoTac. However in order to use this technology for our flagship S+, a considerable amount of detailed work was necessary“, stated Mathias Stündl, Head of BCF Development at Oerlikon Neumag.



Oerlikon Neumag - RoTag3

The new RoTac3 is perfectly tuned for the 3-end BCF plant S+. In comparison to conventional tangle units, the RoTac technology forms the tangle knots with a pulsating instead of a continuous air current. The core element of the RoTac is a rotating nozzle jacket which has several holes with a corresponding spacing according to the required number of knots. If a hole is positioned over the compressed air opening, an air blast is released and tangles the yarn. Therefore compressed air is only consumed if a tangle knot is to be formed. The necessary volume flow and therefore the energy consumption are significantly reduced. In comparison to conventional tangle units, the compressed air consumption is reduced by up to 50%. Therefore the RoTac3 has been granted the e-save label for particularly energy-efficient and eco-friendly technologies.

This principle enables the RoTac³ to generate tangle knots with defined distances and controllable strengths. Tangle dropouts are reduced and downstreaming performance improved. A very gentle yarn treatment reduces the yarn tension. The resulting, better process stability is very beneficial for future trends such as fine deniers and demanding polymers. RoTac3 is immediately available for the BCF plant S+ and can be retrofitted in already existing S+ plants. Whereas the S+ is convincing for commercial applications, the Sytec One is particularly suitable for the demanding production processes because of the one-end application. With the S+ and Sytec One, we are excellently positioned on the global BCF market and can practically fulfill nearly all the customers' requests “, ensures Martin Rademacher, Sales Director BCF.

Another highlight of Oerlikon Manmade Fibers war the premiere of their BCF Technology Symposium in Hannover during Domotex. It was a special event, as it was the 10th anniversary of this anual forum. Previously it always took place as a one-day event at the company's headquarters in Neumünster. The BCF Technology Symposium presents fascinating market subjects such as recycling or the growing significance of PET, to a professional audience from all over the world.

Another technical attraction was the ALPHA 500 XHDC at the **Schönherr** booth. This machine continues the legacy of the well-proven ALPHA series, weaving high-density carpets in 8 colours at an unmatched reed density of 1,200. With over 3 million points/m², these carpets are pinpoint sharp, displaying unrivalled colour and material combinations.

Furthermore innovative binding technologies like the "Magic Weft 3", or the "Traditional Carpet Effect" were presented. Many carpet manufacturers have been impressed by the new Stäubli Jacquard machine LX 2493 which is designed to meet the requirements for very high densities and high production speeds. The Schönherr team was pleased about the many visitors it received during the exhibition, and enjoyed the many talks with business partners about new projects and the international carpet market.

Volkmann presented the energy-saving spindle family for its carpet machines which have been developed under the framework of the **Saurer** E³ technology, (Energy, Economics and Ergonomics).

Maximum quality with optimum commercial viability is the motto of the successful CarpetTwister / CarpetCabler generation. Spindle and pot package variants together with drive and bearings technology allow extremely high energy savings up to 40 %. Delivery speeds of up to 120 m/min for uptwisting can increase production by up to 30 %.
Thanks to creels with pneumatic support, threading systems, new pneumatic centrally adjustable creel yarn brakes and ball thread brakes, operating times can be reduced by up to 10 %.

Winners of the Carpet Design Awards 2015

There was also plenty of excitement surrounding the Carpet Design Awards, presented by Innovations@DOMOTEX. Honoring outstanding quality and unique design, the most prestigious international awards for modern handmade carpets were presented at DOMOTEX for the tenth year. Prizes were given in categories such as studio artist designs, traditional and modern carpets and rugs, and best innovation. The public was also able to select their favorite at the end of DOMOTEX.

More than 250 designer pieces from 23 countries were submitted in the competition for the coveted trophies, with 25 carpets reaching the final round. The carpets will be on display throughout DOMOTEX in a special area of Hall 17. The eight winning designs impressed the expert jury with outstanding characteristics in terms of form, color and material.

The carpets were judged with regard to design and design concept, material, finish, texture and quality, as well as sustainability and branding.

The head of the Carpet Design Awards jury, Michael Sodeau, who heads his own design practice in London, said of the judging process: “This year the panel consisted of people with hugely different skill sets all of whom work in different countries. This meant that everyone’s professional experience was quite different, and sharing our opinions was very engaging and informative, and I think has led to an interesting range of results.”

The eight winners received their awards at a prestigious ceremony in the presence of international guests from the retail and design sectors of the international carpet industry. A keenly anticipated event every year, the presentation of the Carpet Design Awards is one of the highlights of the world’s leading trade fair for carpets and floor coverings.

This year, the prize-giving ceremony was for the first time held as part of the Innovations@DOMOTEX showcase. Innovations@DOMOTEX offers companies the unique opportunity to spotlight their innovations vis-à-vis a choice international audience of professionals at the world’s leading trade fair for carpets and floor coverings. The format provides a highly appealing, tangible means of conveying the sector’s innovative spirit. Not only that, but featured exhibitors benefit from considerably more exposure and crowd-pulling potential for their latest products and trailblazing innovations.

Being part of Innovations@DOMOTEX also makes it far easier to get in touch with interested retailers, craftspeople and architects, thus stimulating new business and valuable networking. Innovations@DOMOTEX participants benefit from high-impact publicity not only during, but also before and after the show.

The next DOMOTEX runs from 16 to 19 January 2016.

The winners of the Carpet Design Awards:

01	Best Studio Artist Design	Ayka Design , My secret Garden
02	Best Modern Design Superior	Naziri , Waves of Colour
03	Best Modern Design Deluxe	RUG STAR by Jürgen Dahlmanns , Heart No. 01 Original
04	Best Traditional Design	Art Resources , Classic Revival
05	Best Transitional Design	Naziri , Nouveau Tabriz
06	Best Modern Collection	Wool and Silk , Steppe
07	Best Traditional Collection	RUG STAR by Jürgen Dahlmanns , The Great Gatsby
08	Best Innovation	Ayka Design , Circles of Life

01- Best Studio Artist Design - Ayka Design , My secret Garden

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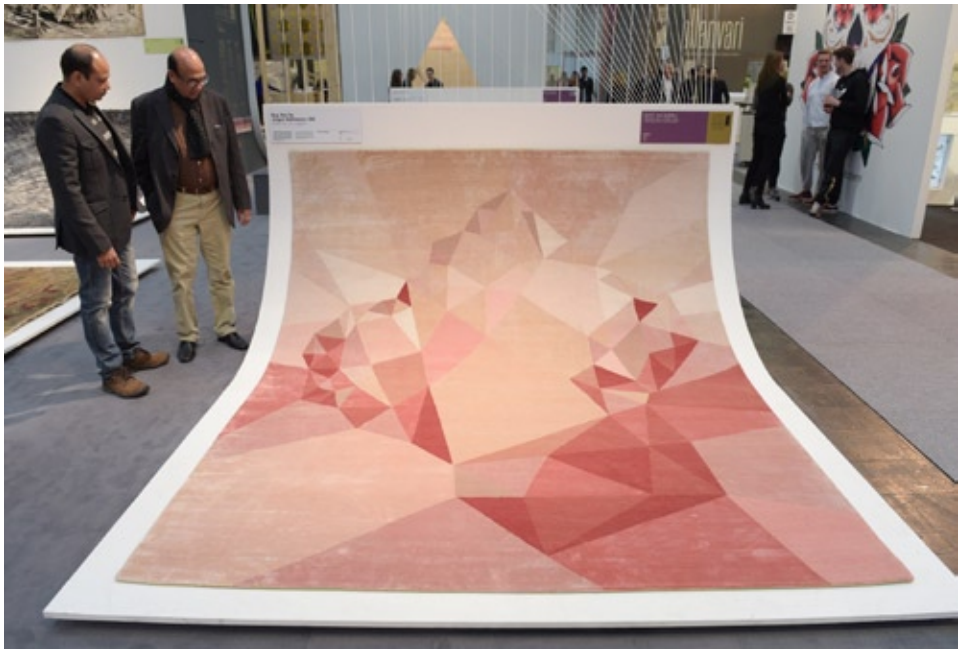
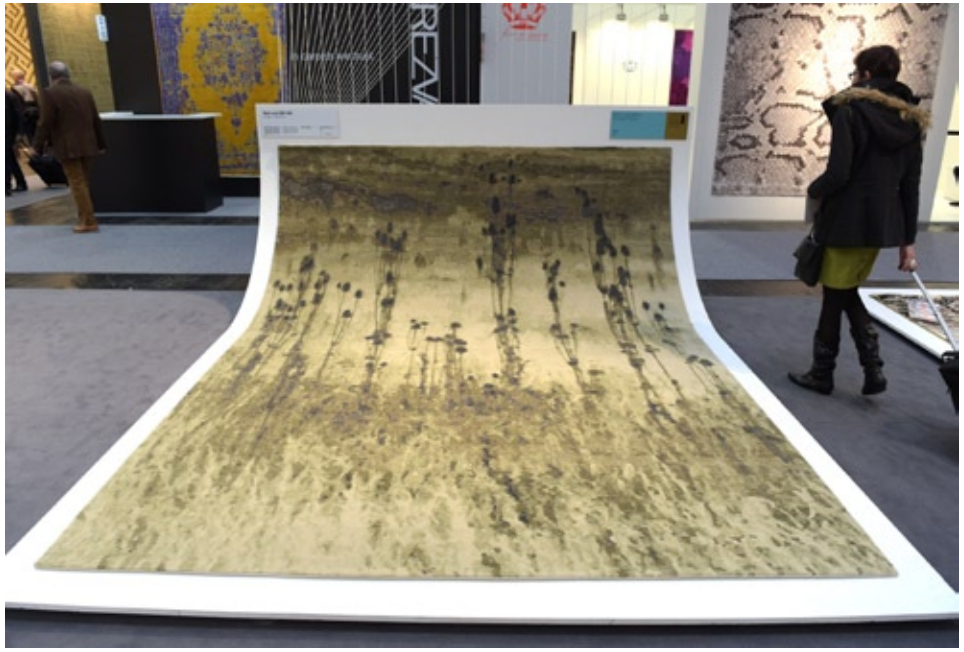


03 - Best Modern Design Deluxe - RUG STAR by Jürgen Dahlmanns , Heart No. 01 Original

04 - Best Traditional Design - Art Resources , Classic Revival

05 - Best Transitional Design - Naziri , Nouveau Tabriz



06 - Best Modern Collection - Wool and Silk, Steppe

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08 - Best Innovation - Ayka Design , Circles of Life

Country Focus:

by Oliver Schmidt

Italy

In this issue of our country focus series, we intend to take a look at Europe's most important textile country: Italy. Our reasons are twofold. Firstly, Italy is this year's host of the mother of all textile machinery exhibitions - the ITMA - scheduled to take place from 13-20 November. Secondly, the country has been through a difficult period following the economic crisis and has not yet regained momentum.

But has Italy's world-famous textile and fashion industry also been hit, or is it capable of defying any recession? This is the question we wish to examine, touching briefly on Italy's historical development as a textile country and establishing whether Europe's driving force of the textile industry can keep pace with the seemingly overwhelming competition from Asia.

As always, we'd like to start by providing a brief overview of the country and its people.

Italy, officially the Italian Republic, is a unitary parliamentary republic in the South of Europe. With 61 million inhabitants, it is the 5th most populous country in Europe. The country covers an area of 301,338 km2 (116,347 sq mi) and has a largely temperate climate. Due to its shape, it is often referred to in Italy as lo Stivale (the Boot).

Italy's territory lies mainly on the Apennine Peninsula, which is surrounded by the Mediterranean Sea, and in the Po Plain as well as the southern mountainous part of the Alps. It borders on France, Switzerland, Austria and Slovenia, with its land boundaries measuring a total of just under 2,000 km. At 7,600 km in length, its coastline is four times as long. The micro-states of Vatican City and San Marino are completely encapsulated by Italian territory. In addition to the large islands of Sicily and Sardinia, there are a number of island groups off the coast. Italy's largest cities are Milan with a population of over 8 million, Naples with almost 5 million, and the capital, Rome, with around 4.4 million. With a population density of just under 200 inhabitants per km_, Italy classes as one of Europe's densely populated countries. Around 67% of the population live in towns, predominantly in the north of the country.

Italy is a founding member of NATO (1949) and the OECD (1948) as well as being a member state of the UNO (since 1955). In addition, it is one of the founding states of the EU (1952) and the Euro zone.

Italy has been a parliamentary republic since 1946. The head of state is the president; parliament consists of two chambers (the House of Deputies and the Senate), which are elected every five years and have completely equal powers. The head of government is the prime minister; since February 2014, this office has been held by Matteo Renzi.

Now let's take a look at the economy. In the GDP rankings for all member states of the United Nations and the World Bank, Italy is in 8th place with 2,149,485 million USD, just ahead of Russia and just behind Brazil. Italy is a very highly developed country and has the third largest economy in the Eurozone. The country's per capita GDP in 2013 was 34,103 USD according to IMF figures, and 35,597 USD according to the World Bank. Here, Italy lies in 29th place in IMF statistics, behind Great Britain and ahead of South Korea. Within the Euro zone, Italy is in 10th place.

Italy is one of the EU countries which has been particularly hard hit by the economic crisis of 2009 and the Euro crisis of 2012. In the crisis year of 2009, economic output shrank by 5.5%. A brief recovery in the years 2010 (1.7%) and 2011 (0.6%) was followed by a three-year recession (2012: -2.5%, 2013: -1.9%, 2014: -0.5%). Quite apart from this, Italy has had problems with its national budget for almost three decades, having run up the major part of its debt during the 1980s and the beginning of the 1990s. In 1979, the national debt amounted to 62.4%. By the end of 2013, debt had reached a record high of 127.9%, outstripping the previous peak of 124.5% reached in 1994.

However, the recession seems to be over for the time being. With the words: “Italy is back!”, the Secretary-General of the OECD José Angel Gurría presented the Italy Report 2015 at the Ministry of Finance in Rome on 24 February 2015. “Italy is moving forward along an unprecedented path of reform, which will not only stimulate growth and employment”, claims Gurria.

One day later, Salvatore Rossi, Director-General of the Italian Central Bank, announces: “We have reached a turning point”. In the current quarter, Italy is set to register a slight increase in economic output for the first time in 3 years. According to OECD estimates, a total of 0.6% is expected for 2015 and 1.3% for the following year.

The WTO reports that in 2013 Italy exported goods worth a total of 517,740 million USD, compared with imports worth 477,391 million USD, thus generating a trade surplus of 40,349 million USD. This means Italy’s share in the world’s total trade in goods for 2013 was 2.75%. Italy’s most important trading partner is Germany, which accounts for 12.7% of exports and 15.9% of imports, followed by France with 11.2% and 8.5% respectively.

Other important export markets for Italian products are Spain (6.5%), the USA (6.2%) and the United Kingdom (5.2%). Italy continues to draw most of its imports from China (6.2%), the Netherlands (5.3%), Libya (4.6%) and Russia (4.2%).

This brings us to the textile industry. Italian fashion is renowned throughout the world, so it is hardly surprising that Italy’s textile industry is one of the most important sectors of the manufacturing industry.

Since the start of the crisis in 2009, the sector has further increased its weight, outperforming the rest of the manufacturing industry, with the result that its share in the industry, which was still below 10% in 2011, has since risen to 12.7%. This means that one in eight manufacturing businesses in Italy is dedicated to textile and fashion production.

Let’s look back for a moment on the development of the sector. It would only be natural to assume that Italy has always been one of the world’s leading countries for the production and export of textiles and clothing. However, this is not the case. Although in Italy, as in other countries, these industries go back much further than most, a study conducted in 2003 by Nicholas Owen and Alan Cannon Jones from the London College of Fashion shows that up until the mid-1990s other countries, such as England, France and Germany, had a higher output than Italy.

The authors state: „However, in 2001 the Italian textile and clothing sector (output £16.6 billion) was over three times larger than for example the British industry (output £5.1 billion) and accounted for 11.7% of Italian manufacturing output, whereas the British counterpart accounted for just 3.3% of British manufacturing output”

While the textile industry was marked by an increasing shift towards Asia during this period, Italy succeeded in defying this trend and even increasing its production. This undoubtedly made a decisive contribution to Italy's present-day status as a worldwide textile country. However, Italy had already prepared the ground back in the mid-1980s by introducing a number of reforms, notably new wage regulations.
The new macroeconomic and political stability resulted in a second, export-led „economic miracle", based on small and medium-sized enterprises, producing clothing, leather products, shoes, furniture, textiles, jewelry, and machine tools. As a result of this rapid expansion, in 1987 Italy overtook the British economy (an event known as il sorpasso), becoming the sixth in the world.

This corporate landscape still endures today. Most companies are highly specialized small-to-medium businesses often operating in niche markets. And there are some multinational groups, especially in the luxury segment, that are vertically integrated also in their distribution systems.

Although the Italian textile and fashion industry is spread across the whole country, it is mainly concentrated in three regions in terms of company numbers: Lombardy, Tuscany and Veneto. In total, just under half of all enterprises are situated in these three regions. Around 20% of them are in Lombardy alone, 17.8% in Tuscany and 10% in Veneto. Important production centres are to be found in Biello (woollen fabric), Como (silk), Vigevano (shoes), Castel Goffredo, Prato, Vicenza and Carpi.

The portal "made-in-italy.com" lists over a hundred Italian textile and fabric manufacturers and states the following about the industry: "Italian textiles and fabrics are famous all over the world for their high quality obtained through innovative machinery, techniques and processes that lead to the introduction of always-new fashion fabrics and textiles.

Fabric producers in Italy supply the worldwide market of fashion, home textiles and accessories with their refined materials. The made-in-Italy label is a guarantee of quality recognized by everyone all over the globe."

First and foremost, it is the ever larger luxury brands that have acquired worldwide fame: Versace, Valentino, Giorgio Armani, Gucci, Dolce&Gabbana, Moncler, Prada, etc. These brands are in such high demand that they are seemingly able to weather any crisis. The largest concern, Prada SPA, which has also been listed on the Hong Kong stock exchange since 2011, continually increased its turnover between 2010 and 2014 from 1.9 billion EUR to 4.3 billion EUR. The largest (Y2Y) increase was in 2012, when turnover rose by 31.7%. A major role in this growth was played by exports, as domestic demand was severely hit by the recession.

And even the field of exports shows variations. While the EU and the strongest partner, Germany, have been faltering recently, there has been a rise in demand among the world's affluent classes with pent-up lifestyle needs. Companies are focusing their attention on HENRY, the target audience "High Earners, Not Rich Yet".

It is of key importance that clothing actually be manufactured in Italy. In economic terms, however, "Made in Italy" has long been in the hands of the French to a large extent. Gucci, Bottega Veneta, Brioni, Sergio Rossi, Fendi, Pucci, Pomellato, Bulgari – it is not only these oh-so-Italian-sounding traditional brands which have been taken over by French concerns.

But whilst the luxury segment is booming, the situation looks quite different for the large numbers of small-scale clothing enterprises. Family businesses, which in many cases are extremely small (with 8.6 employees on average), are not only facing difficulty in raising funds, but other problems as well which are typical of this size of company, such as management weaknesses, limited international experience, generational change and lack of marketing.

Virtually everybody has heard of the luxury brands, but the remaining 49,000 companies working for the "Made in Italy" label, many of them suppliers, are largely unknown. According to reports published in various German newspapers, the textile and clothing industry has seen the loss of 8,000 companies and 83,000 jobs over the past five years alone, and there has also been a sharp increase in short-time labour. These figures are confirmed by a press release issued in September 2014 concerning the Milano Unica, Italy's most important textile trade fair. This states: „Today, the textile supply chain is composed of over 50,000 enterprises, mainly small and very small businesses, which however represent an incomparable and extraordinary source of creativity. In 5 years the crisis has pushed more than 10,000 out of the market."

Reuters, in its report entitled "Italian textiles struggle to weave a new spell", painted a picture of doom and gloom. By way of example: „Though Italy's fabric industry has improved productivity in recent years, it has not been able to compete on wages. The result is fewer jobs, lower living standards and abandoned factories, such as a trail of empty shells along the Seriana Valley outside the northern Italian city of Bergamo." It continues:"It had no unemployment and was known as „the Golden Valley" because of the high average income of its famously industrious inhabitants. Now people are lucky if they can find a job in Bergamo. Children move out of the valley (current population: 130,000) as soon as they can, leaving a dwindling and rapidly ageing local population."

This may be true in principle, but does not do justice to the strength and standing of the Italian textile industry. It also needs to be placed in the European context. The European Commission's "Light Industries Outlook" for 2013 provides a more accurate appraisal of the problems facing Italy.

This states: „The positive evolution of general economic sentiment in 2013 has not translated into an improvement in EU industrial confidence index. In line with the moderate increase of this index in the EU, the productionlevel for year 2013 for all sectors, except clothing, has slightly increased. In particular, production index in textiles and leather has improved slightly by 2% and in footwear by 4%. However, the clothing production decreased by 8%, despite positive trends on consumer confidence in the EU and further increase of exports to third countries.

The situation in clothing could be attributed to the reduction of substantial production capacities in some countries in Southern Europe, due to liquidity problems of SMEs and the closure of companies, especially in Italy, Portugal and Greece. For all sectors, positive export performances remain an important support of production levels given the weakness of internal demand in the EU."

In addition to the difficulties stemming from the businesses themselves, the marked downturn in the Italian domestic market is blamed for the problems.

"In 2012, domestic consumption fell by 4.2% as a result of a downward trend in real wages. This has taken its toll on the textile and fashion industry. Domestic consumption in this field has fallen by 10% to 26.7 billion EUR", according to GTI.

One thing that could create major problems for Italy's fashion and textile industry in the medium to long-term is the fact that cheap goods bearing the "Made in Italy" label are being produced on Italian soil.

Commercial premises in the Macrolotto 1 industrial park which became vacant owing to a spate of business bankruptcies have been bought up or rented at knock-down prices by Chinese enterprises, resulting in the emergence of a Chinese production centre manufacturing cheap goods which are then legally assigned the label "Made in Italy".

Over 2,000 small-scale textile businesses employing 30,000 Chinese workers are currently manufacturing clothing featuring the latest Italian fashion designs, but using inferior fabrics imported from China.

Now let's take a look at exports. The EU28 weighs for 55.3% on total exports and continues to be the most important market for Italy. The first market for Italian textiles is Germany. According to German foreign trade statistics (BAFA), exports fell during the first 9 months of 2014 compared with 2013, albeit only slightly from 1,661 to 1,644 million EUR. A decline was also seen in France (-4%), the third most important market.

Overall, however, the export situation is looking very positive. According to the WTO, Italy exported textiles to the value of 14,726 million USD and clothing to the value of 23,273 million USD in 2011. Following a decline in both segments in 2012 to 13,167 million USD (-10.6%) for textiles and 22,166 million USD (-4.8%) for clothing, the figures increased to 13,459 million USD (+2.2%) and 23,735 million USD (+7%) respectively; in the case of clothing, this compensated for the decline in 2012. Hence, Italy has a 4.4% share in the world's total exports of textiles, which are valued at 305,898 million USD. In the case of clothing, valued at 460,268 million USD, this percentage is as high as 5.2%. This means that in 2013 Italy was the third largest exporter of textiles, behind India and China with 18.9 billion USD and 106.6 billion USD respectively, and was ranked second in the WTO statistics for clothing, behind China with 177.4 billion USD and ahead of India with 16.8 billion USD.

The status of Italian clothing around the world is also apparent from the report entitled “China’s consumers want better clothing”, which was published by “Germany Trade & Invest” in February 2015 and claims that Chinese consumers are increasingly buying imported goods. Although the volumes remain negligible in comparison with China’s exports, imports totalled 5.6 billion USD in 2014, an improvement of 17.0% on the previous year. Italy is by far the biggest supplier of high-quality textiles and clothing, delivering industry-related products valued at 927 million USD to the People‘s Republic of China (+9.8% compared with 2013), ahead of Korea with 373 million USD and Vietnam with 241 million USD.

The total turnover generated by the sector in 2012 is cited by ISTAT, the Italian National Institute of Statistics, as being 50.4 billion EUR. With imports amounting to 18.9 billion EUR, this represents a trade surplus of 8.2 billion EUR. In the first half of 2014, according to ISTAT, Italian textiles posted an overall production growth equal to +7.6% (excluding knitted fabrics), generally outperforming the upstream textile industry, which registered a +4.8% increase. A change of pace that emerged already in the second quarter of 2013 and was confirmed in the first quarters of 2014, showing a positive performance in both the January-March and April-June time spans, with +9% and +6.2%, respectively.

The industry is represented by a textile and fashion association, Sistema Moda Italia (SMI). The association has a very good website, but it is unfortunately only in Italian, which considerably limits its international visibility.

The most important textile trade fair in Italy is the Milano Unica. This international textile fair organized in Italy, has been created through the vast experience, fine quality and tradition of three prestigious Italian exhibitions, Ideabiella, “Moda In” and “Shirt Avenue”.

The unique, composite project is held twice a year (February/September), presenting the finest quality products from both Italian and European textile manufacturers. The name, Milano Unica represents the three essential characteristics of the textile fair. Another event of worldwide repute is the yarn fair for the knitted fabric industry “Pitti Immagine Filati”, which takes place in Florence.

Like the textile industry, machinery and plant building is also one of the core sectors of Italian industry. The highly developed Italian export industry works with precision machinery otherwise built almost exclusively in Germany and Switzerland. In a recent survey carried out by the Italian export agency ICE, North American managers commend the quality standards and flexibility of Italian machinery builders in adapting products to special requirements.

Around 300 textile machinery builders have teamed together in the association ACIMIT (Associazione dei Costruttori Italiani di Macchinario per l‘Industria Tessile). For textile machinery builders too, exports are of crucial importance in the light of the sharp fall in domestic demand, particularly in recent years, although figures are currently picking up again.

One of the most important enterprises is Savio Macchine Tessili S.p.A., known primarily for its high-quality automatic winders, which represent Savio's main product (85-90% of sales), and a wide range of Two-for-one twisters diversified for different market requirements.

Another big company is the Itema Group from Colzate. The company describes itself as the world's largest privately held provider of advanced weaving solutions, including best-in-class weaving machines, spare parts and integrated services. Itema is the only manufacturer in the world to provide the top three weft insertion technologies: rapier, air jet and projectile, with an ample product portfolio and a commitment to continuous innovation and technological advancement of its weaving machines.Following from the +12% increase in volumes of machine sales in H1 2014, the Group closed the year with sales +10% referring to European production and a substantial confirmation of previous year volumes for the Chinese Subsidiary. "We are pleased with our results considering that our Company grew by some 60% in the past two years in a market that declined, according to our estimates, by some 30% over the same period," said Carlo Rogora, Itema CEO.

The Italian textile machinery building industry is also expected to receive a major boost from the ITMA 2015, which for the first time in 20 years is taking place in Italy - in November in Milan, to be precise.

The host country will have the highest number of exhibitors - 380 in all - and together with the other European manufacturers is setting the pace as regards sustainable production, which is the motto of the trade fair.

The reason for the trade fair being staged so late in the year is an event of even greater importance for Italy, which will mean that in summer and autumn the eyes of the entire world are focused on the country. From 1 May to 31 October 2015, the Expo is taking place in Milan. In addition to the major impact this is likely to have on Italy's image and economy, the textile industry is expecting an increase in sales within the country as a result of the influx of visitors. Hence, numerous factors point to an upswing, which is something the Italian textile and fashion industry more than deserves. During the difficult years, radical changes have been introduced, and new solutions and products have been devised in a spirit of innovation and creativity. "What lessons have we learned?" asked the President of Milano Unica in the press release concerning the fair. "Innovation in the first place: I could expand a lot on this, but in thirty years I have never seen such a determination on product innovation, service, the same business models used by our customers as the one I am experiencing in these days."

Further factors for future success are cited as being: larger size, vertical integration, brand policy, sustainability and focus on people. All of us who appreciate textiles and fashion from Italy and attach importance to quality will no doubt be crossing our fingers that the upswing is significant enough to warrant being given a name - "il ritorno", for example.

9. Denkendorf Nanoforum

Cipher to combat product piracy – the smallest parts offer fascinating possibilities

The potential of nanotechnology for the development of new of textile products is huge. At the Denkendorf Nanoforum, which took place on the 11th of December 2014, advisers from economy and science provided information as to which fields of application, functional worlds and product features Nano textiles are able to offer. The event, organised by the institute of textile and production technology at ITV Denkendorf and the Hohenstein Institute, took place for the ninth time.

A nanotechnology cipher was exhibited by Dr. Reinhold Schneider from the Institut für Textilchemie und Chemiefasern, and showed how the tiniest particles can protect against plagiarism. Security inks make apparently invisible marks on a product, documenting the entire production chain. These inks become visible with the help of infrared light, showing whether the product is an original or a forgery.

Nanostructured surfaces also offer many advantages with solar protection systems. Ralf Bosse from Schmitz showed the development from simple antique solar protection units right up to today‘s awning materials with their many integrated functions.

Nano functionalized materials don‘t just keep out injurious ultraviolet rays and provide shade. The textile material has self-cleaning qualities to prevent the awnings from becoming unsightly very quickly, or having to be laboriously cleansed. When it rains, the dirt sticks to it like a drop of honey which rolls about on the surface, and then drips off. The smaller the particle, the more effectively the dirt is removed. Textiles which are used outdoors must be protected against the ageing effects of ultraviolet rays. Dr. Volkmar von Arnim from ITV Denkendorf explained in his lecture how permanent protection can be achieved using nanoparticles as UV absorbers in textile coatings.

New coatings are not only transparent and invisible to the eye, but they also simultaneously reflect heat radiation. Dr. Torsten Textor from DTNW and Stefan Gierling from the Hohenstein Institute spoke of how nanoparticles can be used. Nanoparticle impregnation is also a useful factor when it comes to outdoor clothing. Dr. Herbert Bachus from CHT R. Beitlich GmbH indicated that ecologically-friendly fluorine-free impregnation can replace the established fluorine-containing coatings.

Fascinating possibilities are also offered by „effect pigments“.

These are to be found mainly in automotive finishes, but also in cosmetic articles. Used in textiles, they provide for elasticity, UV protection, conductivity and abrasion resistance. In nano sizes they can be applied very thinly, enabling rather pleasant haptic effects. Mrs. Hullin from Eckart stressed that functional pigments are becoming ever more significant, and the technical textile division is growing steadily. Research is currently being carried out as to how graphene can be used in nanotechnology. The material, which is derived by ablation from graphite could, in the future, function as a barrier layer and protective coating. How products like graphene can be safely produced is a subject that interests IoLiTex from Heilbronn. They produce ionic liquids which have valuable qualities. These are liquids which are viscous over a large temperature area and are practically inflammable. Using this, outer graphite layers can be stabilised. In his speech, Dr. Boyan Iliev explained how ionic liquids and nanotechnology can have positive influences on one another. As well as nanoparticles and nanofilms, nanofibres are the third important feature of nanotechnology-based functional textiles. Dr. Giuseppino Fortunato from the EMPA showed how versatile nanofibres can be. One example is used in carrier materials, which deliver clinically active substances to the body or to cellular membranes.

Dr. Stegmaier from ITV summarised the varied and informative speeches and turned to the subject of security. The effect of nanoparticles has been thoroughly investigated in the past. Current research agrees that companies who placed emphasis on the early development of this new technology were right: Ordinarily, nanotechnology functionality is safe.

Chemically and thermally stable fibres for environmental and membrane creation

ITV Denkendorf develops new plant technology together with mechanical engineering companies.

Protective clothing and hot gas filters, ocean sailing and construction membranes have this in common: They require chemically or thermally highly resistant fibres. Fluorine plastics fulfill this condition, but its mechanical load-bearing capacity is limited. A second plastic could take over this role. Together with mechanical engineering partners, ITV Denkendorf has developed a process technology with which fluorine plastics can be spun into fibres together with a second plastic.

Today, large membrane roofs are produced from fibreglass fabrics coated with polytetrafluorethylene. They have high strength characteristics, but they are also heavy and have to be supported by suitable structures. With plastic-based fibres, over one third of this weight could be saved. In clothing items that protect against chemicals and hot gas filtration fluorine polymers are useful due to their high chemical and thermal permanence. The necessary strength must be guaranteed using fibres from another plastic which is also exposed to the aggressive media.

In these areas of application, a combination of a strong core plastic fibre with a fluorine plastic coating is the solution.

These days, bi-component fibres, in particular core-coat fibres, are widespread, for example, in hot-melt uses. The combination of fluorine plastics with other high-temperature plastics like Polyetheretherketon (PEEK), Polyphenylensulfide (PPS) or Polyphthalamide (PPA) provide a challenge to plant technology which conventional plants cannot master. A temperature permanence of about 400°C was a requirement for which technical solutions were prepared. However, fluorine plastics or those with trace elements that appeared during extrusion creating decomposition products are highly corrosive at temperatures of over 350°C, in particular when traces of water are present.

ITV Denkendorf, together with REIMOTEC Maschinen- und Anlagenbau GmbH, compiled the fundamentals of extrusion. A concept developed by ITV Denkendorf to deal with the extruding components from the Reifenhäuser Gruppe and Spinnkopf, were made out of Hastelloy, which is resistant to corrosion. Spinning nozzles were developed which take into account the special assembly-line behaviour of the fluorine polymers. ITV created a careful cleansing procedure for the parts affected with hot-melt, like the spinning nozzles and barrel extruders. Nevertheless, corrosion prevention at the spinning pumps failed at high temperatures. To solve this problem, ITV worked together with WITTE Pumps & Technology GmbH. The company is experienced in the construction of highly corrosion-resistant chemical pumps, although these relatively small spinning pumps were new territory for them. WITTE GmbH succeeded in developing a pump resistant to corrosion which corresponded to ITV's requirements for repeated cleansing cycles.

This new spinning pump was used to create bi-component fibres from hot-melt spin-applicable PTFE and PFA in combination with PEEK. The polymers were made available by ElringKlinger AG and Victrex. DIENES Apparatebau GmbH provided a newly-developed heating shaft. As well as the technological conditions for fluorine plastic spinning, one ought not to forget the safety aspect. The hydrofluoric acid present during decomposition is not only very corrosive, but it is highly toxic when it comes into contact with skin, or when the fluorine gases are breathed in, even in small quantities. For this reason, a fluorine gas detector was installed for constant monitoring, and the workers wore fresh-air rinsed protective masks. An emergency plan was made for possible incident control.

The research project began with this technological equipment and appropriate safety measures. Earlier research showed that the structural viscosity of fluorine polymers will not allow high spinning speeds. For this reason, the best bi-component fibre strength was achieved with only one tenth of the spinning speeds usual with polyester. The bi-component fibre strength reached 30 cN/tex (563 MPa). The analysis of the individual components showed that with optimised parameters, approximately a further 20% increase in strength can be expected.

The results of the research form the basis for other ITV competence areas, for example, with environmental and architectural textiles. The industrial partners have extended their portfolios in high-tech uses and products thanks to this development.

Chemically and thermally stable fibers used in membrane construction

Tailor-made carbon fibres

Unique processing technology at HPFC Denkendorf

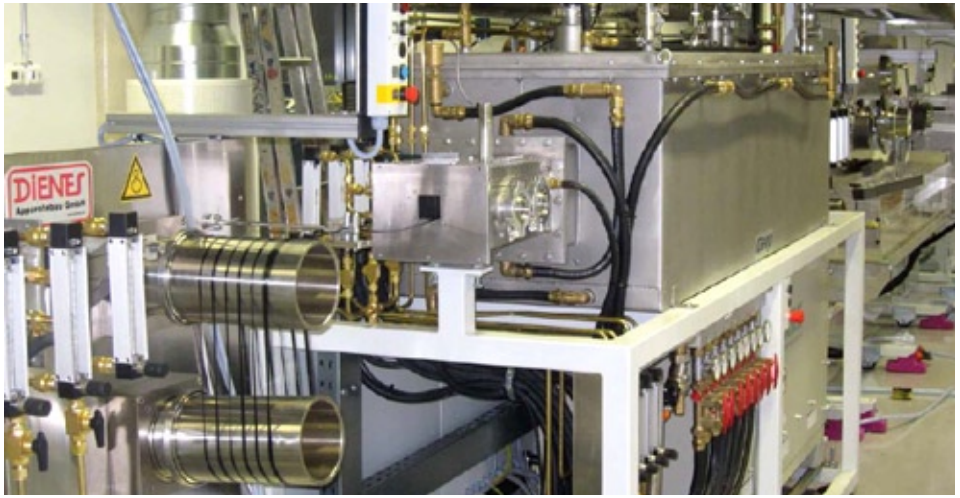
Improved carbon fibre from alternative precursor materials. This is one of the research targets at the Denkendorfer High Performance Fiber Center (HPFC). Its focus is a unique worldwide investment concept. Special technical process steps enabled the production of improved carbon fibre through structural changes in their molecular scaling in a controlled and reproducible way.

In addition, carbon fibres are generated technically in several process steps. The basic material is usually polyacrylonitrile. Within the scope of the research project, the economically interesting and cheap precursors of lignin, cellulose and polyethylene are used at the Institut für Textilchemie und Chemiefasern Denkendorf (ITCF) as well as acrylonitrile as alternatives for carbon fibre production.

In the initial procedural step, the basic materials are spun in a hot-melt spinning unit into so-called precursor fibres.

These must now be converted in two further working steps – and in two separate plant areas - into carbon fibres. The precursor fibres must be stabilised or interlinked before carbonisation in a high temperature furnace. This step is necessary to change the molecular structure so that the fibres can withstand the upcoming thermal stresses during carbonisation and do not disintegrate into dust. Several procedures are immediately available for interlinking. In a separate pilot line, stabilisation is carried out under oxygen. The procedure is standard and technically reliable in industrial production. In an air circulation oven with four separately heatable zones, the precursor material reacts with oxygen. The reaction causes the materials to fracture, and the unwanted parts are disposed of. Stabilisation under oxygen is ideal for stabilising polyacrylonitrile-based precursor fibres and some alternative precursors. However, other materials and objectives require a different procedure:
As a specific feature of the ITCF plant there are two electron beam units available. Stabilisation of precursor fibres under electron bombardment has the same effect as oxygen stabilisation. That having been said, the methodology is another. Chemical double bonding occurs in the base material of the fibre and this reacts, creating new bonds in other places. The fibre molecules become connected. The fibre is stabilised for later carbonisation steps.

One of the electron beam units lies directly behind the spinning nozzle. The fibres can thereby be hardened immediately on spinning out. A big advantage for further processing: the fibres lose their brittleness and can be wrapped and turned more easily.



High temperature furnace and surface treatment conveyor of the carbonisation unit.

Polyethylene is used as a precursor material for the carbon fibres. Until now, this polymer could only be partially stabilised. Improved carbon fibre characteristics are available at the ITCF using a chemical polyethylene pre-treatment which was specially designed for the available and unique reaction chambers.

In this process, the polyethylene is modified for stabilisation and the fibre structure is optimised for subsequent carbonisation. The chambers are installed within the scope of the FP7 EU „NEWSPEC“ project. In addition, the second electron beam arrangement is ready for stabilisation of a variety of polymer interlinking.

The carbonisation of the fibres occurs in its own processing line. It consists of an oven conveyor system for the carbonisation and a surface aftercare unit. Chemical compounds are split at temperatures of up to 1300°C in an oxygen exclusion zone in a pyrolysis furnace. The fission products are then discharged. The fibres are then exposed to temperatures of up to 2000°C in a furnace which creates the final carbon fibre structure. The orientation and creation of the graphite layers within the fibres is also influenced here. Unique also is the special thread guide which enables thread tension control between the furnaces. Optimum thread tension enables an extremely targeted adjustment of the chain molecules within the fibres. For the subsequent high temperature treatment this means an optimisation of the fibre structure – with improved mechanical qualities of the carbon fibres themselves.

Following carbonisation, the carbon fibres are run through an electro-chemical process, with their surfaces treated in a galvanic bath with functional groups. This is of advantage if the fibres are to be used as a strengthening fibre in group materials. This process increases fibre matrix adhesion, and in so doing, also increases the composite material strength.

The combination options of these individual plant components are unique. Modular construction patterns of the individual plant components can either be integrated into the process or left out completely. This enables the development of carbon fibres with new quality profiles and from alternative precursor materials in dimensions not seen up until now.

BioGlizz: Boarding sport fun “on green snow“

ITV Denkendorf and partners research algae as an alternative to artificial snow

Skiing, sledging and snowboarding are all fun and keep people fit. These sports are usually carried out on snow - which is often in short supply. Those who live in areas that have little snow have to go to the mountains – and even there the white splendour is becoming scarce.

Because of climate change, the natural snow areas are getting smaller and are useable for less time every year. Up until now, only artificial alternatives like artificial snow, ski halls and polyacrylic-based surfaces have been snow substitutes. However, whether it‘s indoor-snow halls or the Alps: Snow cannons that produce artificial snow use a lot of energy and water, something that is not good for the environment.

An ecologically acceptable alternative would be to use algae. The organism, tiresome in the water to some, could soon provide for „green ski fun“. Easy-to-grow algae on textile carrier materials could now form a suitable surface for a variety of sports.

ITV Denkendorf and Innovationsmanufaktur GmbH, the Institute of Food and Biological Process Technology of the University of Technology of Dresden and BASF Polyurethanes GmbH are currently researching whether this idea is technically, organisationally and economically feasible.

The biological alternative to artificially generated snow should enable different kinds of winter sports at nearly every location on Earth, whilst causing substantially less environmental damage than standard artificial snow. BioGlizz should be cheap and easy to produce so that it can be used by practically anyone. This would have the positive side effect that the increasing lack of exercise is counteracted in the population, alleviating the resulting health problems and lessening the burden on the public purse.

Current research into algae-covered textiles looks promising. With the help of biotechnology, a new lifestyle with a large market potential could be created.

Topics of the next issue 2 /2015

TOP STORY:

Technical Textiles & Nonwovens

Techtextil & Texprocess 2015 Preview
Technical Textiles: The Top 10 Producer

Interview

Country focus: Germany

Nonwovens & Technical Textiles:

"Hometech, Indutech, Medtech, Mobiltech"

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