ITMA has always been about innovation, and these days the essence of all the best innovation is sustainability. While continuing to advance the important causes of quality and productivity, we must also ensure that textiles are made in a way that conserves energy, water and raw materials, and that neither pollutes the environment nor depletes the finite resources of the planet. The arguments for this approach are both ethical and economical.

‘Master the Art of Sustainable Innovation’ is the message for ITMA 2015, and in this spirit we have created the ITMA Sustainable Innovation Awards, to recognise leadership and excellence in this area of vital interest to the industry and to society at large. You will read about the Awards in this edition of the Bulletin.

I urge all textile and garment manufacturers who have applied technology in the cause of enhanced sustainability to enter the awards before their deadline if March 1, 2015. Details are easy to find on the www.itma.com website.

While the ethical arguments for sustainability are easy to grasp, the economic and commercial case is often more complex. That is why the second edition of the World Textile Summit, taking place alongside ITMA 2015, will focus entirely on the business aspects of sustainability and its contribution to the bottom line. The Summit will seek to answer, with clarity, the key question for textile business owners and strategic managers: “How can I add value by adopting sustainability as a core policy?”

Charles Beauduin, President, CEMATEX
www.cematex.com
ITMA has introduced a new award programme to recognise the work of manufacturers and post-graduates in the sustainable development of the global textile and garment industry. The Industry Excellence award is open to textile and garment manufacturers who have leveraged on technological innovations to advance business sustainability that benefit people, planet and profit.

There are two Research & Education Excellence awards, which are separately open to Masters and Doctorate level students.

“Sustainability, as we all know, is a major concern for global businesses involved in the textile and garment making chain,” said Charles Beauduin, president of CEMATEX, the European Committee of Textile Machinery Manufacturers which organises the event. “Hence, we have adopted the theme ‘Master the Art of Sustainable Innovation’ for ITMA 2015.”

“We are pleased to launch the ITMA Sustainable Innovation Award to make ITMA the meeting place where captains of the industry converge to source technologies and share their expertise in the area of sustainable innovation.”

The panel of judges for the Industry Excellence award comprises Mr Beauduin; Prof Dominique Adolphe, president of Association of Universities for Textiles (AUTEX); Josué Gomes da Silva, president of International Textile Manufacturers Federation (ITMF); John Mowbray, executive director of MCL Global; and Serge Piolat, president-elect of European Apparel and Textile Confederation (EURATEX).

The judging panel for the R&E awards includes Dr Jeroen Vits, Secretary General of Belgian Textile Machinery Association (SYMATEX); Prof Vladan Koncar, head of research at ENSAIT; Prof Thomas Gries, director of the ITA at RWTH Aachen University; Dr Takeshi Kikutani, Professor for the Department of Organic and Polymeric Materials at the Graduate School of Science and Engineering of Tokyo Institute of Technology; and Prof Behnam Pourdeyhimi, director of the Nonwovens Institute (NCSU).

The winner of the ITMA Sustainable Innovation Award will receive a cash prize of €10,000 and a trophy, among other rewards. Cash prizes of €4,000 and €5,000 will be awarded to the winners in the Masters and Doctorate categories, respectively. Nominees of the Industry Excellence Award ITMA 2015 must be nominated by exhibitors. Institutions participating in the ITMA 2015 Research and Education pavilion are eligible to nominate their post-graduate students for the Research & Education Excellence Award.

Entries can be submitted online at www.itma.com from until March 1, 2015.

Lenzing Group has begun production at its new Tencel jumbo production facility, said to be the largest in the world, at the Lenzing site in Upper Austria.

CEO Peter Untersperger said: “We are more than satisfied with the progression of the start-up curve. Based on the production process in the past days and weeks, we have reasonable grounds to believe that this latest generation of Tencel technology will completely fulfill our expectations.

“The successful start-up of production operations is a technological milestone for Tencel and for the entire Lenzing Group. We are optimistic that we will be able to achieve the planned production target of 30,000 tons by the end of 2014.”

“This new Tencel facility is decisive to ensure the long-term viability of fibre production at the Lenzing site and the basis for future investments in all markets,” added Lenzing’s chief operating officer, Friedrich Weninger.

It is the first time a single production line with an annual nominal capacity of 67,000 tons has been installed, said Lenzing. Previous Tencel production lines have been only one-quarter as large.

The new plant design incorporates lessons learned from the longstanding experience of three existing Lenzing Group Tencel production plants located in Austria, USA and Great Britain, said the company.
STeP Certification Breaks New Ground

The Oeko-Tex Association has recorded several ‘firsts’ in recent weeks, in the continuing roll-out of its STeP certification programme. The New Fiber Fabric Workshop textile division of the Shenghong Group became one of the first companies in China to be awarded STeP certification for its environmentally friendly and socially responsible production conditions.

“In China, the issues of sustainability and environmental protection are becoming increasingly important as more and more people become concerned with the environment and their health,” said Adrian Meili, of Testex AG, Zurich, which inspected the company. Textile finishing is the key focus of the Shenghong Group. The company has grown into one of the largest service providers in the area of dyes and imprinting in China. Founded in 1992, the Shenghong Group today employs roughly 30,000 people and produces woven fabrics made from synthetic mixes and viscose mixes for outer garments, recreational and sporting wear and baby clothing in its ten production plants.

Premium sportswear provider LÖFFLER became the first company in Austria to be awarded the STeP certificate. Robert Löcker, CEO of the Institut für Ökologie, Technik und Innovation (ÖTI) said: “The sportswear manufacturer LÖFFLER welcomed the opportunity to take on a leading role and let its production facilities be tested according to our sustainability criteria. “For 18 years now, the raw materials for the sports clothing that the company produces has been tested to ensure the clothes are free from harmful substances in accordance with the Oeko-Tex Standard 100. Furthermore, in its production facilities in Austria, environmental compatibility and social responsibility are core values that are put into practice.”

The textile finisher SC Ready Garment Technology SRL Romania (RGT), a subsidiary company of the German Dr Dietrich Bock & Partner Group, has become the first Romanian textile company to be awarded STeP certification. Dr Stefan Droste, COO of the Hohenstein Textile Testing Institute, and STeP lead auditor Mathias Wenzel presented the certificate to Dr Dietrich Bock, CEO of Dr Dietrich Bock & Partner, and Theodora Lautarescu, management systems RGT Romania.

“The result achieved by RGT Romania far exceeded the basic requirements for STeP certification,” said Mr Wenzel, “but what is also of central importance is that the solutions implemented up to now in the course of the STeP certification are regularly reassessed to ensure continuous improvement and further positive development.”
200 Businesses Support Cotton LEADS

The Cotton LEADS programme, launched last October, has attracted more than 200 participants across the global cotton textile supply chain. Established by the Cotton Federation as a joint venture between Australian and US cotton industries, the programme advocates and demonstrates responsible growth practices for the natural fibre. Companies involved include Target Corporation, AEON TopValu, Fountain Set, American & Efird, and Operadora LOB.

“The first phase of the Cotton LEADS programme was aimed at raising awareness of the significant environmental gains already achieved by cotton growers in Australia and the United States and their commitment to continual improvement,” explained Mark Messura, senior vice-president of global supply chain marketing at Cotton Incorporated. Mr Messura pointed to the stringent national and local level regulatory environment in both countries, combined with transparency of these practices and third party verification to validate the claims. “The robust national infrastructures of both countries have facilitated and documented these gains, but more importantly, they enable the country-wide implementation of future best practices,” he said.

Adam Kay, CEO of Cotton Australia, added: “The self-investment by growers into research and development is a key commonality in both countries, and one that demonstrates their commitment to continual improvement.” Cotton LEADS’ founding members are Cotton Australia, the National Cotton Council of America, Cotton Council International and Cotton Incorporated, who created it to raise awareness of the responsible growing practices and commitment to continuous improvement among cotton producers in its member countries.

Talks Aim to Liberalise Trade in Green Technologies

Exporters of technology for clean steam generation, heat recovery and industrial wastewater treatment may stand to benefit from reduced tariffs, as the EU and 13 other members of the World Trade Organization (WTO) launched negotiations to liberalise global trade in environmentally beneficial goods and services. These technologies are on a list of 54 products produced in 2012 by APEC (Asia-Pacific Economic Cooperation) and are subject to an APEC agreement to reduce their tariffs to 5% or less by 2015. This list, and a broad range of other products, will be the initial focus of new multilateral talks.

The EU says a new agreement will be good for the environment, green economic growth and jobs, and will help make rapidly growing cities greener and more sustainable. The initiative will be “an important step towards spreading the use and benefits of environmental goods, services and technologies across the globe, including in the efforts to tackle climate change.” Products and technologies under discussion include those that promote:

- clean the air and water
- effective waste management
- energy efficiency
- control of air pollution
- renewable energy

The aim is to remove tariffs on environmental products, but also to create a ‘living agreement’ which can respond to new technologies and add new products in the future. The EU says it should be possible to include environment-related services and tackle non-tariff barriers, such as local content requirements or restrictions on investment.

Participating countries are: Australia, Canada, China, Costa Rica, Chinese Taipei, the European Union, Hong Kong, Japan, Korea, New Zealand, Norway, Switzerland, Singapore and the USA.
The US Congress has introduced a proposal to establish a list of chemicals that are considered to be persistent, bio-accumulative and toxic (PBTs) with allowable uses. The administrator of the Environmental Protection Agency (EPA) would be charged to identify allowable uses as well as to protect public health and the environment.

In July, Congress introduced S.2656 ‘Protecting America’s Families from Toxic Chemicals Act of 2014.’ The act requires the administrator of the EPA to establish a list of chemicals that are persistent, bio-accumulative and toxic (PBT) and to list allowable uses for PBT chemicals.1

Under the proposal, a list of PBTs would be established within 180 days after the criteria to identify substances as PBTs have been finalised. The proposal also lists 21 chemicals that meet the criteria of PBTs based on existing evidence.

According to the proposal, the administrator of the Environmental Protection Agency (EPA) is charged to:
• Identify allowable uses
• Specify a date when to cease the manufacture and distribution of PBT substances not identified for allowable uses
• Identify conditions to protect public health and the environment, including disposal of chemical applicable to the allowed uses
• Consider petitions to allow future allowable uses of PBT chemicals

There is also a presumption to allow specific uses of:
• Cadmium and its compounds
• Lead and its compounds
• Mercury
• PFOS and PFOF

Details of the proposed law were circulated by SGS, which provides analytical testing and consultancy for chemical substances in consumer products for the US and international markets.

The revised environmental management standard, ISO 14001, has been published as a Draft International Standard (DIS) and is available for comment, the International Organization for Standardization (ISO) has announced.

Like all ISO standards, ISO 14001 is reviewed every five years. The main changes in the new draft are a greater focus on risk management and a shift towards improving environmental performance rather than the management system itself.
Bio-based Industries Initiative

EU and industry leaders have launched a new European Joint Undertaking on Bio-based Industries (BBI). The aim is to trigger investments and create a competitive market for bio-based products and materials sourced locally and ‘Made in Europe,’ tackling some of Europe’s biggest societal challenges. This is one of seven partnerships launched this summer between the EU, the private sector and member states under Horizon 2020, the EU’s €80 billion research and innovation programme. The BBI partnership is aiming towards the use of renewable natural resources and innovative technologies for greener everyday products. Between 2014 and 2024, €3.7 billion will be injected into the European economy – €975 million from the European Commission and €2.7 billion from the Bio-based Industries Consortium (BIC) – to develop an emerging bioeconomy sector. Amongst the consortium members are a number of companies working in the textile industry, including Avantium, BASF, Novozymes, Clariant, DSM and Solvay. Through financing of research and innovation projects, the BBI will create new and novel partnerships across a range of sectors. The aim of the BBI is to use Europe’s untapped biomass and wastes as feedstock to make fossil-free and greener everyday products. At the heart of it are advanced biorefineries and innovative technologies that will convert renewable resources into sustainable bio-based chemicals, materials and fuels. Máire Geoghegan-Quinn, European commissioner for research, innovation and science, said: “The bioeconomy has huge potential that is attracting investments all around the world. With this new partnership, we want to harness innovative technologies to convert Europe’s untapped renewable resources and waste into greener everyday products such as food, feed, chemicals, materials and fuels, all sourced and made in Europe.” Peder Holk Nielsen, CEO of Novozymes, added: “The BBI is an unprecedented public-private commitment because of its focus on bringing bio-based solutions to the market. It is an opportunity to deliver sustainable growth in European regions and to reverse the investment trend currently going to other regions of the world.” The BBI is a shift from a fossil- and imports-based society to increase Europe’s share of sustainable economic growth. It is expected to create jobs, revitalise industries, diversify farmers’ incomes and reduce greenhouse gas (GHG) emissions by at least 50% in comparison to fossil-based applications. The BBI will manage the investments in the form of research and innovation projects that are defined in annual Calls for Proposals and implemented across European regions. In line with Horizon 2020 rules, all stakeholders are invited to submit proposals.

Greenscope

Who Needs Sustainability?

By Peter Gnägi, President, Swiss Textile Machinery Committee

Since we know that humanity consumes the resources of more than one earth, the magic word ‘sustainability’ is in everybody’s mouth. But: No actions, no change. Actions have been taken, indeed, but most of them in the wrong direction. Do you know this joke about the former Soviet Union? – “What happens, if the Planning Commission goes to the Sahara”? – “Nothing for 10 years, then the sand gets scarce”. This is no longer a joke. See: www.mediafire.com/download.php?50xs073510rjtkl - ‘Sandmanns Albtraum’ (Sandman’s nightmare). But why should I care about sustainability? We have everything today. Science will find a solution tomorrow. Actions need to be taken by governments, anyway. Most important: My generation is not affected!
Fortunately, I am the only one in the world who thinks this way...

The Swiss machinery industry definitively does not think that way. It has reduced CO2 emissions by 50% and energy consumption by 40% in the last 24 years – increasing output. The Swiss textile-machinery companies are themselves sustainable: the oldest one is more than 200 years old. They produce machines that last for a long time. One of them – still in operation – has been in use for 74 years.

Even more important are the effects that modern textile machines create in the fields of energy, water, waste and raw material usage. All new models improve in one or more of these factors. The latest development of one company, which has been awarded the Swiss Energy Prize, would save the power of several atomic plants, if fully implemented world-wide. Customers: Go and buy!

These examples are good, but by no means sufficient. The sustainability issue, unfortunately, has to become much worse before it gets better.

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**Insight**

**Making the Efficiency Case to China**

By Adrian Wilson

Through detailed ‘Blue Competence’ case studies, Germany’s VDMA is proving the efficiencies achieved by the latest machines of its member companies – and what they could mean to China.

Each year, about 1,600 marathon runs are organised worldwide. The biggest and most famous events – with 50,000 and up to 60,000 runners, respectively – take place in New York and Berlin, while one of the most scenic takes place in China against the sweeping backdrop of the Great Wall. Unifying the runners in all such events today is the fact that their T-shirts are generally made from breathable and quick-drying fabrics, designed to provide thermal insulation, skin-friendliness and the optimum perspiration absorption.

Each year around 125 million such functional T-shirts are produced and if all were manufactured using the latest German textile machinery, the VDMA says, 23.5 billion watt hours (23.5 GWh) of energy would be saved – sufficient to power 200m notebooks during a working day.

“Such T-shirts are usually made from textured, warp knitted, dyed and finished polyester yarns before making-up,” explained Karin Schmidt, head of technology and research for the VDMA Textile Machinery Association. “Comparing data from 2003 and 2013, we’ve...
ascertained that a total saving of 30% in the overall balance of energy has been achieved from yarn manufacturing through to fabric finishing.”

“We took into account all of the electrical energy consumed, in addition to the compressed air and air conditioning required for the filament production and the thermal energy required for the finishing,” said Ms Schmidt. “Making-up, however, was not included.”

Considerable energy savings of 0.73kWh/kg have been achieved on the latest Oerlikon POY filament spinning machines – equating to 42% less than the same technology in 2003. Karl Mayer’s carbon fibre-based CFK technology, meanwhile, employed for the warp knitting machine’s ground guide bars, has resulted in energy consumption being reduced by 26% compared with the machines of a decade ago.

In the finishing steps, only between 10-25% of the total energy consumed is electrical and the rest is thermal. Employing vapour as process heat can have a tremendous impact, in addition to allowing savings in water consumption. By incorporating internal heat recovery systems, process control can be improved to allow temperatures of 60°C to be reached before even adding external heat. Further gains can be made from the use of measuring and control systems which also allow a reduction in the amount of dyes, finishing and auxiliary chemicals required.

A second VDMA study shows that the energy required to manufacture standard cotton T-shirts has been reduced by 28% and the water consumption by 33% over the past decade. Based on the production of just one T-shirt per person on the planet, this equates to around 1,000 megawatts – the equivalent, the organisation points out, to the annual output of Beijing’s Gaojing and Guohua coal power plants. Applied to the production of 1,000 T-shirts, about 2,725kWh can be saved as a result of advances in German yarn production, circular knitting, washing, bleaching, dyeing and finishing.

The VDMA’s calculation is based on the conversion of medium staple cotton into a softly twisted yarn with a count of Ne 30 and knitted into jersey fabric.

Efficiencies in dyeing are all about getting as low a liquor ratio as possible and 1:5 is possible with the latest German technology. The VDMA notes that some rope dyeing machinery manufacturers are claiming lower ratios than this, but questions whether process safety and care of the material are being sufficiently taken into consideration. A third area on which a study has been conducted is a more technical application – textile advertising billboards. The VDMA said these have been growing in popularity in recent years and about 400,000 tons of warp-knitted fabric is now produced for them worldwide each year. This equates to about 3,442 sq km – sufficient to cover the entire metropolis of Guanzhous. One particularly large example at Dubai airport alone covers 20,000sq m – large enough to cover three football fields.

Compared to a decade ago, today’s German production machines can achieve energy savings of 26% in the production of these fabrics – equivalent to 300bn watt hours (300GWh). This is equal to the daily output of the world’s biggest hydro-electric power station, the Three Gorges Dam on the Yangtze River. Textile billboards have to be resistant to extremes of weather and also suitable for carrying quality prints, while being either transparent or light-proof, depending on requirements.

Polyester yarn with a count of dtex 550 f 96 PES was used for the VDMA study, the warp and weft yarn systems interlaced with a 76 dtex PES yarn to produce fabrics of 120gsm.

The coating and laminating of these materials varies significantly from region to region, the VDMA says, so for the study only the stages up to the warp knitting were taken into account. Key improvements in terms of energy savings have been achieved again in the spinning and warp knitting processes.

Round spinning beams save more than 40% of the previous energy consumed and high frequency induction technology at the godets saves 20% compared to conventional systems.

A 29% energy reduction has meanwhile been achieved in the warp knitting process for these fabrics over the past ten years. This is down to a combination of improvements, including improved gear technology, reduced friction and the reduction of moved mass. In addition, the machines have an average lower error rate of just three faults per 1,000 metres produced.

For further information visit: http://machines-for-textiles.com/blue-competence/stories
Zero Discharge
Textile-chemical manufacturer Archroma has published its first formulation list of ‘ZDHC Manufacturers Restricted Substance List (MRSL)-compliant’ colorants and chemicals for textiles and apparel. The ZDHC Group released its first MRSL in June, identifying chemical substances banned from international use in facilities that process textile materials in apparel and footwear. The list also established concentration limits for the chemical groups which are banned under the ZDHC Joint Roadmap: Towards Zero Discharge of Hazardous Chemicals, a commitment made by six major brands in November 2011 to reduce the environmental impact of the textile industry. The roadmap is based on a list of 11 priority chemical groups to be phased out by 2020.
www.archroma.com

Formaldehyde Free Printing
BASF has introduced Helizarin EcoSafe, a ‘zero add-on’ formaldehyde pigment printing system, designed for sensitive textile applications such as infant and baby clothing. As well as ‘zero add-on’ formaldehyde, Helizarin EcoSafe offers a soft handle and some key advantages associated with using pigment printing system over a conventional reactive printing process, the company said. These include reductions in water and energy consumption through eliminating the after-washing process and the subsequent drying.
www.basf.com

Triple Added Value
Saurer has launched the E3 triple-added-value label, standing for Energy, Economics and Ergonomics. Through its technology, it aims to optimise energy consumption, productivity and automation and operating conditions of a machine including time needed for settings and adjustments. At ITMA ASIA + CITME the company’s twisting arm, Allma and Volkmann, exhibited the CompactTwister with E3 technology, delivering energy savings of up to 40% due to the eco drive concept and eco spindle technology. Productivity of the CompactTwister is 30% higher due to faster delivery speeds of up to 120 m/min. The CableCorder CC4 cabling twister provides energy savings of up to 50% in tyre-cord cabling, while the reduced heat load in production facilities also cuts air-conditioning costs.
www.saurer.com

Sustainable Technology Video
ACIMIT has produced a video (https://www.youtube.com/watch?v=5mnj5m97oKg) promoting the progress in sustainable technologies of Italian textile-machinery manufacturers. It illustrates the Sustainable Technologies project, which was launched four years ago to uphold the commitment of its members to make their products more sustainable and eco-friendly. The video also presents the Green Label, the centerpiece of ACIMIT’s project, providing specific details on the energy savings derived from each machine on which the label is affixed.
www.acimit.it

Ozone Revolution
Tonello’s ECOfree is a revolutionary ozone washing system to achieve denim wash-out effects. The ozone is dissolved in water and the indigo is degraded during washing. ECOfree reduces consumption of water, energy and chemicals, while giving more pronounced denim effects and better performance according to Tonello, which has created a video to explain the process. Benefits also include shorter processing times.
www.tonello.com

Energy Saving Success
Rieter has published its third annual sustainability report for 2013, highlighting its efforts in energy saving, facility modernisation and apprenticeships. The core themes of this report are global promotion of future generations of personnel and energy efficiency. Rieter’s 2012/2013 investment programme included the expansion
Waterborne PU Coating

Bayer MaterialScience has launched Insquin, a turnkey technology for the development and scaling of new waterborne polyurethane (PU) coated fabrics.

Bayer is offering customers pure waterborne PU technology, material co-development and a certified manufacturer programme for PU coated fabrics. The new technology is designed to meet the requirements of the fashion industry and the performance demands of the sportswear sector. Its applications include PU leather, functional fabrics and high-performance printing.

Insquin enables the manufacture of all kinds of coated fabrics to be carried out without solvents. The environmental benefits of the technology are of particular importance to PU leather, which has been one of the largest sources of environmental and health hazards amongst all types of coated fabrics.

The new technology reduces water consumption by 95% and energy usage by up to 50% in the coating process.

www.bayermaterialscience.com

and modernisation of its manufacturing capacity in China and India, which increased the group’s energy consumption in absolute terms by 2,000 megawatt hour to 133,000 megawatt hour. Rieter reported a simultaneous reduction in its total energy consumption relative to corporate output (sales) by 15% due to its energy-saving programme. The company’s R 60 rotor spinning machine is an example of energy saving through innovation, consuming 5% less energy than the predecessor model.

www.rieter.com

Coda

The Business Benefits of an Effective Sustainability Strategy

Sustainability is good for people and the planet, but what can it do for the bottom line?

Next year’s second World Textile Summit (WTS) will explore sustainability strategies that create business value in the textile manufacturing value chain. In line with the key themes of ITMA 2015, it will seek to answer sustainability questions that matter to the industry’s strategic decision-makers:

• What return should I expect from capital investment in resource efficient technologies?
• How do I establish and monitor a sustainable supply chain?
• What are the market opportunities that arise from a strategy based on clean production and sustainable materials?
• How do I manage the risks to corporate reputation?

Scheduled for 13 November 2015 and co-located with ITMA 2015 in Milan, WTS 2015 will be a unique one-day event that brings together the world’s most influential textile leaders to debate issues of strategic importance to the global industry. It is owned and organised by CEMATEX, WTIN and MP Expositions.

Charles Beauduin, President of CEMATEX, said: “ITMA 2015 will be an opportunity for manufacturers to view and compare the latest in resource-efficient textile technologies. Such investments take place against a policy background where senior decision-makers have to consider their sustainability strategies against corporate objectives. World Textile Summit 2015 will help to place sustainability in its context as a key component of value creation in any business.”

Programme development will be assisted by an advisory panel that currently includes: Jason Kibbey, Executive Director of the Sustainable Apparel Coalition; Jonas Eder-Hansen, Programme Director of the Nordic Initiative Clean & Ethical; LaRhea Pepper, Managing Director of Textile Exchange; Patrick Laine, CEO of the Better Cotton Initiative; and Saskia Hedrich, Senior Knowledge Expert (Apparel, Fashion & Luxury) at McKinsey & Co..

Eileen Ng, project director of ITMA 2015, said: “With almost 14 months still to go, WTS 2015 is already attracting strong support from the broader textile community. We are very pleased to have the Textile Institute and the Sustainable Apparel Coalition on board as our supporting partners.”

Several leading companies and associations have confirmed their sponsorship of the event. They include SPGPrints, MS Italy, Oerlikon, bluesign technologies, Novozymes and the Oeko-Tex Association.

www.worldtextilesummit.com