



PROJECT DELIVERABLE REPORT

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TEX-SHIELD

Environmental friendly and Durable Oil and Water Repellence Finish on Technical Textiles

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
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1.0 Introduction

Water, oil and soil repellences are desirable characteristics for fabrics in many market segments and the textile industry has developed a variety of finishes which impart such properties. Perfluorinated polymers (fluoropolymers) are known for their excellent water, oil and soil (wet or dry dirt) repellent properties and are the basis of the dominant technology used to apply a functional finish on textiles, particularly for waterproof clothing.

Perfluorinated polymers are based on perfluorocarbons (PFCs) which have eight carbon atoms – frequently referred to as C8 PFC chemistry, Figure 1. However, C8 PFC based polymers have significant health and environmental concerns because they are possible carcinogens, stable in the environment and are bioaccumulative. The level of concern is such that perfluorinated chemistry is now subject to legislation and the materials are no longer manufactured in Europe or the US.



Figure 1: Typically accepted drawn structure for perfluorooctanoic acid that forms the base of perfluorocarbons with a chain of eight carbons.

Replacement of C8 PFC chemistry is therefore topical, and for the textile industry critical. The aim of the TEX-SHIELD project was to offer alternatives as replacement for the incumbent C8 PFC chemistry whilst maintaining the same level of repellency performance.

2.0 Document Scope

The objective of this document was to list the publications and dissemination undertaken through the TEX-SHIELD project and to provide an indication of how widely disseminated and far reaching the work of this project has achieved.

3.0 Dissemination Activities

3.1 Promotional documentation

During the project several documents have been generated describing the purpose and direction of the TEX-SHIELD project. These documents were prepared so that the entire project consortium could use them to talk about the programme and progress made. Examples of these documents are provided in Appendices

A and B. Appendix A is a flyer intended for distribution at exhibitions and trade shows. Appendix B is a set of PowerPoint slides. These were used as a tool for the partners when describing the project to their customers on a one-to-one basis.

3.2 Internet sites

There is a project website, <http://www.texshield-project.eu/> that provided an overview of the project to the public and gave details of key contacts concerning the project. As well as providing a tool for partners to share information with each other, it was also intended as a reference point for members of the public or other interested organisations to discover the project.

The SME association partners focus on serving the textile industry. Each of the associations had their own web sites with adverts for the TEX-SHIELD project and links to the project web site. For instance:

- Nwtexnet: <http://nwtexnet.co.uk/research-development/>
<http://www.clustercollaboration.eu/web/nwtexnet>

- Unitex: <http://www.unitex.be/index.php/texshield.html>

Unitex typically achieve 300 hits on their web site per month.

- Uptex: <http://www.up-tex.fr/les-projets/up-tex-en-europe/tex-shield.html>

Uptex have 140 members organisations and regularly have 2886 hits on their web site per month.

- Techtera: <http://www.techtera.co.uk/innovation/geotextiles?menu=150>

Techtera have 110 members and typically obtain 1830 hits on their web site per month.

Assuming that only 10% of the hits to these websites viewed a discussion on the TEX-SHIELD project, this still constituted an exposure of the programme to 7,500 people over the projects duration.

Besides the SME associations, the TEX-SHIELD project was advertised on other partners web sites, for instance:

- Sampas Nano Technoloji: <http://www.sampasnano.com/arge-projects/tex-shield.html> which had 563 hits during the course of the project.
- TWI: <http://www.twi-global.com/news-events/connect/2013/connect-september-october-2013/tex-shield-project/>

Although not solely focused on the textile market, TWI are a member based organisation having in excess of 700 member companies covering a wide range of industries.

- University College Ghent: <https://www.hogent.be/onderzoek/onderzoeksnieuwsbrief/artikels-externenieuwsbrief-3/gebruikersgroep-tex-shield-vergadert-in-gent/>

<https://www.hogent.be/zoekresultaat/?Keywords=texshield&display=search&newSearch=true&noCache=1>
<http://expertise.hogent.be/nl/searchall.html?searchall=texshield>

3.3 Conferences, workshops and trade shows

Although not exhaustive, Tables 1 to 3 list the major conferences and fairs where the TEX-SHIELD project has been disseminated over its three year duration.

Table 1: Conferences and exhibitions where the TEX-SHIELD project has been disseminated reaching a potential audience of 41,507 people within the textile and scientific industries

No.	Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed
1	Conference	UP-tex	TEX-SHIELD presentation DORNBIERN	12/09/2013	Dornbirn, AU	Textile Industrials, Scientific Community	800	EU
2	Fair Mood 2013	UCG & UNITEX	TEX-SHIELD poster on booth	10/09/2013-13/09/2013	Brussels, B	Textile Industrials, Scientific Community, Designers	Visitors fair (10,000 attendees)	EU
3	Fair & Conference Techtextil 2013	UCG & UNITEX	TEX-SHIELD poster on booth	11/06/2013-13/06/2013	Frankfurt, G	Textile Industrials, Scientific Community	Visitors fair (27,500 attendees)	EU - Worldwide
4	Fair & Conference Techtextil 2013	UCG & UNITEX	TEX-SHIELD presentation (Tom Van Hove)	11/06/2013-13/06/2013	Frankfurt, G	Textile Industrials, Scientific Community	Visitors fair (27,500 attendees)	EU - Worldwide
5	B2B networkday Texstream 2013	UCG & UNITEX	TEX-SHIELD poster + demo water en oil repellent	19/04/2013	Gent, B	Textile Industrials, students, future students, schools	115	Belgium
6	Fair Eurofinish 2013	UCG & UNITEX	TEX-SHIELD poster on booth	Week 43/2013	Gent, B	Industrials	Visitors fair (2438 attendees)	EU
7	7 th European Coating Conference 2013	UNITEX & UCG	TEX-SHIELD poster on booth	5 & 6/09/2013	Gent, B	Textile Industrials, Scientific Community	223	EU
8	7 th European Coating Conference 2013	UNITEX & UCG	TEX-SHIELD presentations (Frank Godefroidt)	5 & 6/09/2013	Gent, B	Textile Industrials, Scientific Community	223	EU
9	Student Exchange	UCG	TEX-SHIELD workshop (Ilse Garex)	04/12/2013	Gent, B	Students HoGent Trendwatching & Students Fontys ACI	31	EU
10	Sportsgear Congress 2013	UNITEX - UCG	TEX-Shield presentation (Marc Van Parys)	17-18/12/2013	Annecy-le-Vieux (Fr)	Textile industrials	Visitors fair, 280 attendees	EU
11	7 th European Coating Conference 2013	Insa Lyon	(Super) Hydrophobic Textile Finishing: Strategy for a Silicone Solution	05/09/2013	Gent, Belgium	Scientists, Industries	200	EU - Worldwide

Table 2: Conferences and exhibitions where the TEX-SHIELD project has been disseminated reaching a potential audience of 7,307 people within the textile and scientific industries

No.	Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed
1	Helmtextile	WTIN (UNITEX)	Digital technologies for carpets and attributes - the opportunities, lecture + leaflets	10/01/2014	Frankfurt	Textile companies, suppliers, students, designers	105	EU-Worldwide
2	Meeting on invitation: Textile Flagship Sustainable textile raw material	Euratex (UCG)	TEX-SHIELD lecture	22/01/2014	Brussels	Invited industrials	12	EU
3	Meeting on invitation: Textile Flagship From wet to dry processing	Euratex (UCG)	TEX-SHIELD lecture	23/01/2014	Brussels	Invited industrials	15	EU
4	TEPPIES Conference	Euratex (UCG)	TEX-SHIELD leaflet	23,24/01/2014	Brussels	Invited industrials	240	EU
5	Meeting B2B networkday, Technisch Textiel network day	Fedustria (UCG)	TEX-SHIELD leaflet	30/01/2014	Gent	Invited industrials	20	Belgium
6	B2C networkday, Opendeurdag HoGent2014	UCG	TEX-SHIELD poster + leaflet + demo	28/04/2014	Gent	Students & family	100	Belgium
7	B2C network day, Textstream 2014	UCG & UNITEX	TEX-SHIELD poster + demo water en oil repellent	08/05/2014	Gent	Textile Industrials, students, future students, schools	115	Belgium
8	FESPA 2014	Unitex	Digital Printing of Textile: the right choice - lecture, leaflets	21/05/2014	Munchen	Textile, plastic, paper industries, suppliers, students	57	EU-Worldwide
9	17th International Symposium on Silicon Chemistry	Insa Lyon	Environmentally-Friendly and Durable Oil and Water Repellences on Technical Textiles - poster only	05/08/2014	Berlin	Scientists, Industries	600	EU-Worldwide
10	European Conference on Protective Clothing	Centexbel (UCG)	TEX-SHIELD lecture	14,15,16/05/2014	Brugge	Invited Textile Industrials,	200	EU
11	Lecture	Insa Lyon	Environmentally-Friendly and Durable Oil and Water Repellences on Technical Textiles	30/06/2014	Lyon	Scientists	50	France
12	European Technical Coating Congress 2014		TEX-SHIELD leaflet + poster (booth)	2-4/09/2014	Köln	Invited Textile Industrials,	480	EU
13	3rd Digital Textile Congress 2014	Unitex + UCG	TEX-SHIELD leaflet + poster (booth)	4 + 5/09/2014	Gent	Invited Textile Industrials,	251	EU
14	ESMA - Congress	Unitex	Micro-deposition of functional chemicals on Textile - lecture + leaflets	01/10/2014	Dusseldorf	Broad audience (users, suppliers, students....)	378	Worldwide
15	FESPA Congress	Unitex	The change from Analogue to Digital (digital printing and finishing) - lecture + leaflets	02/10/2014	Milan	Textile companies, suppliers, students, designers	102	Worldwide
16	Fair MoOD 2014	UCG & UNITEX	TEX-SHIELD poster on booth	8-10/09/2014	Brussels, B	Textile Industrials, Scientific Community, Designers	Visitors fair, (4787 attendees)	EU
17	Individual dissemination	UP-tex	Presentation of TEX-SHIELD to Protex International	15/09/2014	Paris, France	Chemical Company	1	France
18	Individual dissemination	UP-tex	Presentation of TEX-SHIELD to INNOTHERA	16/09/2014	Arcueil, France	Medical Company	2	France
19	Individual dissemination	UP-tex	Presentation of TEX-SHIELD to LENFANT	10/10/2014	Hem, France	Textile Company	1	France

Table 2 (continued): Conferences and exhibitions where the TEX-SHIELD project has been disseminated reaching a potential audience of 7,307 people within the textile and scientific industries

No.	Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed
20	Lecture - FPS 2014	UP-tex	Functionnalized Nonwoven for liquid filtration	15/10/2014	Lyon, France	Companies and Scientists	60	EU
21	B2B networkday Roadshow Smart Coating Application Lab	Sirris (UCG + Unitex)	TEX-SHIELD Lecture	16/10/2014	Diepenbeek	Invited Textile Industrials,	39	Belgium
22	B2B networkday Roadshow Smart Coating Application Lab	Sirris (Unitex)	TEX-SHIELD Lecture	21/10/2014	Ghent	Invited Textile Industrials,	49	Belgium
23	B2B networkday Roadshow Smart Coating Application Lab	Sirris (UCG)	TEX-SHIELD Lecture	23/10/2014	Gent	Invited Textile Industrials,	49	Belgium
24	2 nd International FR Conference on Fire safe textile & plastics	Centexbel	TEX-SHIELD leaflet	16-17/10/2014	Gent	Invited Textile Industrials,	150	EU
25	Individual dissemination	UP-tex	Presentation of TEX-SHIELD to Hermes	04/11/2014	Tourcoing, France	Textile Company	2	France
26	TCL2015 congress	ITN News (Unitex)	Digital Coating technologies - an update. - Two lectures + leaflets UV-coating: Turning major wet coating processes into dry and energy efficient processes	4-5/11-2014	Cannes	General	110	Worldwide
27	Commission meeting Technical Textile	Fedustria (UCG)	TEX-SHIELD Lecture (Tom Van Hove)	06/11/2014	Gent	Invited Textile Industrials,	22	Belgium
28	Commission meeting Technical Textile	Fedustria (UCG)	TEX-SHIELD Lecture (Frank Godefroidt)	06/11/2014	Gent	Invited Textile Industrials,	22	Belgium
29	Commission meeting Technical Textile	Fedustria (UCG)	TEX-SHIELD Lecture (Ilse Gareze)	06/11/2014	Gent	Invited Textile Industrials,	22	Belgium
30	Euratex PPE congress	Unitex	Novel functionalisation technologies - lecture + leaflets	17/11/2014	Brussels	Textile companies, research institutes, associations, universities, suppliers	200	EU
31	Euratex Convention 2014	Euratex (UCG)	TEX-SHIELD leaflet	18/11/2014	Brussel B	Textile Industrials, students, future students, schools	130	EU
32	PPE Conference 2014	Euratex (UCG)	TEX-SHIELD lecture	18-19/11/2014	Brussel, B	Textile Industrials, students, future students, schools	130	EU
33	Congress Global Fashion Conference 2014	UCG	TEX-SHIELD poster	19-21/11/2014	Gent, B	Textile Industrials, students, future students, schools		EU
34	Individual dissemination	UP-tex	Presentation of TEX-SHIELD to DESLEE CLAMA	05/12/2014	Zonnebeck, Belgium	Textile Company	2	Belgium
35	ESMA PID Congress 2014	Unitex	Digital technologies: a step forwards for creative textile - lecture + leaflets	27/11/2014	Dusseldorf	Broad audience (users, suppliers, students....)	350	Worldwide
36	TenCate	Unitex	Digital technologies for the factory of the future - lecture	09/12/2014	Nijverdaal	Invited authorities, companies, decision makers	90	Netherlands

Table 3: Conferences and exhibitions where the TEX-SHIELD project has been disseminated reaching a potential audience of 117,814 people within the textile and scientific industries

No.	Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed
1	Individual dissemination	UP-tex	Presentation of TEXSHIELD to DHJ International	08/01/2015	Selestat, France	Textile Company	3	France
2	Individual dissemination	UP-tex	Presentation of TEXSHIELD to Barbry	09/03/2015	Sailly-sur-la-Lys, France	Textile Company	2	France
3	Individual dissemination	UP-tex	Presentation of TEXSHIELD to Choquenot	20/03/2015	Chauny, France	Company working on water filtration	2	France
4	10 th Annual ETP Conference	Euratex (UCG)	TEX-SHIELD leaflet	25,26/03/2015	Brussels	Industrialists	150	EU
5	Individual dissemination	Europlasma (UCG + UNITEX)	Presentation of TexShield Project + New coating technologies	27/01/2015	Oudenaarde	Manufacturer of plasma machines	3	Belgium
6	Euratex EATP congress	Unitex	Functionalisation technologies - An update. - Leaflets	26/03/2015	Brussels	Textile Companies, research institutes	150	EU
7	Individual dissemination	UP-tex	Presentation of TEXSHIELD to Dickson Constant	30/03/2015	Wasquehal, France	Textile Company	2	France
8	Individual dissemination	Unitex	Presentation of TexShield Project + New coating technologies to VETEX	02/04/2015	Ingelmunster	Textile company	10	Belgium
9	Individual dissemination	UP-tex	Presentation of TEXSHIELD to Noyon Dentelles	08/04/2015	Calais, France	Textile Company	2	France
10	Individual dissemination	Unitex	Presentation of TexShield Project + new coating technologies to Seyntex	15/04/2015	Tielt	Textile company	8	Belgium
11	Individual dissemination	Unitex	Presentation of TexShield Project + new coating technologies to Sioen	15/04/2015	Aardoole	Textile company	23	Belgium
12	Workshop Smart & Wearable Textile	Centexbel (UCG)	TEX-SHIELD leaflet	28/04/2015	Zwijnaarde	Industrialists, Scientists	25	EU
13	10th International Workshop on Silicon-Based Polymers	InsalYon	Towards environmentally-friendly durable oil-and-water repellent finishing on technical textiles	29/04/2015	Aussois, France	Scientists, Industries	80	EU - worldwide
14	Fair Techtextil 2015	Messe Frankfurt (UCG)	TEX-SHIELD leaflet + poster (booth)	04/05/2015	Frankfurt	Industrialists and scientists	Visitors fair, 42000 attendees	EU - worldwide
15	Fair Techtextil 2015	Messe Frankfurt (Unitex)	TEX-SHIELD leaflet + poster (booth)	03-06/05/2015	Frankfurt	Industrialists and scientists	Visitors fair, 42000 attendees	EU - worldwide
16	Dissemination of TEXSHIELD presentation	UP-tex	Dissemination of communication support on our booth during the 4 days textile exhibition TECHTEXTIL	06/05/2015	Frankfurt, Germany	Textile companies	100	EU - worldwide
17	TECHTEXTIL, 2015	Techtera	Poster Flyers	04 - 07/05/2015	Frankfurt, Germany	Industrialists and scientists	Visitors fair, 42000 attendees	EU - worldwide
18	Individual dissemination	UP-tex	Presentation of TEXSHIELD to CHT Bezema	12/05/2015	Tourcoing, France	Chemical Company	2	France
19	Individual dissemination	UP-tex	Presentation of TEXSHIELD to FEUTRIE	18/05/2015	Sailly-sur-la-Lys, France	Textile Company	2	France
20	MATERIALS WORKSHOP BY TECHTERA	Techtera	Oral presentation	19/05/2015	LYON / FRANCE	Scientists	Unknown	France
21	5 th World carpet Conference	Unitex + UCG	TEX-SHIELD leaflet + poster (booth)	28, 29/05/2015	Gent	Industrialists	249	EU
22	Stabslabo 2050, Co Creation day	Stad Antwerpen (UCG)	TEX-SHIELD leaflet	05/06/2015	Antwerpen	Scientists, Industries	12	Belgium
23	Eurofinish 2015	UCG + UNITEX	TEX-SHIELD poster on booth, leaflet	10 & 11/06/2015	Leuven (Brabant), B	Industrials	Visitors fair, 1850 attendees	EU
24	Lecture - Environord 2015	UP-tex	Que peuvent apporter les nouvelles technologies textiles dans le domaine de la gestion de l'eau ?	11/06/2015	Lille, France	Companies and Scientists	70	EU
25	Textile Flagship 7, sustainable business models	Euratex (UCG)	TEX-SHIELD leaflet	26/06/2015	Brussels	Scientists, Industries	12	EU
26	Textile Flagship 1 & 2 raw materials & resource-efficient technologies	Euratex (UCG)	TEX-SHIELD leaflet	25/06/2015	Brussels	Scientists, Industries	25	EU

Table 3 (continued): Conferences and exhibitions where the TEX-SHIELD project has been disseminated reaching a potential audience of 117,814 people within the textile and scientific industries

No.	Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed
27	4th World Carpet Congress	Unitex - UCG	Carpet industry in transition: Creative functionality or functional creativity. Lecture + booth + Leaflets	28-29/05/2015	Ghent	Invited textile scientists	249	Belgium
28	Individual dissemination	UP-tex	Presentation of TEXSHIELD to St Dizier Environnement	09/07/2015	Gondrecourt, France	Company working on water depollution	3	FR
29	8th European Coating Congress 2015	UNITEX & UCG	TEX-SHIELD poster on booth	3&4/09/2015	Gent, B	Textile Industrials, Scientific Community	222	EU
30	8th European Coating Congress 2015	UNITEX & UCG	TEX-SHIELD presentations (Ilse Garex)	3&4/09/2015	Gent, B	Textile Industrials, Scientific Community	222	EU
31	8th European Coating Congress 2015	Insa Lyon	New silicone formulations for textile hydrophobization	03/09/2015	Gent, B	Scientists, Industries	222	EU - Worldwide
32	ESMA - IJC- Congress 2015	UNITEX	Digital finishing - coating: From wet to dry - Lecture + leaflets	7-8/10/2015	Dusseldorf	Textile companies, designers, suppliers	102	Worldwide
33	MoOD 2015	UCG & UNITEX	TEX-SHIELD poster on booth	8-10/9/2015	Brussels, B	Textile Industrials, Scientific Community, Designers	Visitors fair, 4600 attendees	EU
34	MoOD 2015	UCG Unitex	TEX-SHIELD leaflet + poster on booth	8-10/09/2015	Brussels	Textile Industrials, Scientific Community, Designers	Visitors fair, 4600 attendees	EU
35	TWI Open Day	TWI	TexShield - Booth	22/10/2015	Cambridge	Industrialists, Scientists	90	UK
36	Technological day	Clubtex (UCG)	TEX-SHIELD leaflet /Booth	29/10/2015	Lille	Scientists, Industries	70	EU
37	Technological day	Clubtex (UCG)	TEX-SHIELD lecture of Ilse Garex	29/10/2015	Lille	Scientists, Industries	70	EU
38	Technological day	Insa Lyon	TEX-SHIELD lecture of François Ganachaud	29/10/2015	Lille	Scientists, Industries	70	EU
39	Organisation of Conference on new fonctionnalisations of textiles	UP-tex	35ème journée technologique : traitements des surfaces textiles : nouveaux outils de fonctionnalisations	29/10/2015	Tourcoing, France	Textile companies and Scientists	80	EU
40	A+A CONGRESS	Techtera	Project description on congress website, Poster, Flyers	27 - 30/10/2015	DUSSELDORF	Textile Industrials, Scientific Community, Designers	65000	EU-Worldwide
41	TEXSHIELD WORKSHOP BY TECHTERA	Techtera	Invitation plus TexShield flyer	01/10 - 2/11/2015	LYON	Scientists	3000	EU
42	The Chemistry of collaboration, Royal Society of Chemistry	TWI	TexShield - Booth	03/11/2015	Durham	Industrialists, Scientists	50	UK
43	TEXSHIELD WORKSHOP BY TECHTERA	Insa Lyon	Superhydrophobicity on textile: a process to replace PFCs	03/11/2015	Lyon	Scientists, Industries	10	France
44	TEXSHIELD WORKSHOP BY TECHTERA	Techtera	Oral presentation Flyers	03/11/2015	LYON	Scientists	12	France
45	ITMA 2015. IFATCC-congress	UNITEX	Emerging technologies: From wet to dry. Lecture + leaflets	14/11/2015	Milan	Textile companies, research institutes, associations, universities, suppliers	86	Worldwide

Over the course of the TEX-SHIELD project, through attendance and presentations at workshops, trade shows and conferences, based on the number of attendees at those events, the project has been exposed to 166,628 people within the scientific and textile industries.

3.4 Other dissemination activities

The Association partners also sent out regular communiques to their members, for instance UP-TEX sent presentations on the TEX-SHIELD project across their database of 3000 textile end-users and scientists three times (20/1/2014, 19/09/2014, 19/01/2015). UP-TEX also generates a report for its members in which the TEX-SHIELD project was described (Appendix C).

Techtera had a similar approach in that the TEX-SHIELD project was discussed in their on-line blog and newsletters discussing the project were sent out to their members a number of times, Table 4.

Table 4: Editions of the Techtera newsletter discussing aspects of the TEX-SHIELD project and size of distribution

Newsletter edition	Audience numbers
July 2012	321
August 2012	1882
April 2015	1661
September 2015	1669
October 2015	1661

A copy of one of the early editions of the newsletter is included in Appendix C.

The partner DECCA, produced a set of cycling kit using coatings discussed within the TEX-SHIELD project. This kit, dressed on a mannequin, was kept on display within the DECCA offices and also taken and displayed at trade shows by DECCA, Unitex and UCG, Figure 2.



Figure 2: Cycling kit produced by DECCA sporting the TEX-SHIELD project logo.

4.0 Conclusions

A variety of dissemination activities have been used to publicise and discuss the TEX-SHIELD project outside of the consortium. These have included web based activities, newsletters, presentations, workshops, conferences as well as trade shows.

It can only be approximated as to how many people the details of the project actually reached. Based on the data reported in this document this figure was in the region of 180,000 people.

Appendix A
TEX-SHIELD flyer

Contact details:

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www.texshield-project.eu

Project partners:



HoGent



Reduced fluorine content oil- and water-repellent treatments for technical textiles



www.texshield-project.eu

TEXSHIELD is a project supported by funding from the European Union's Seventh Framework Programme. The project features a consortium of companies from across Europe including four associations who represent hundreds of potential members that can benefit from the work, five SMEs, who represent knowledge of markets and trends, and three research organisations - TWI from the UK, INSA LYON from France and University College of Gent in Belgium.



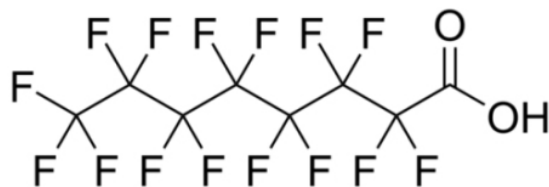
Functional textiles require superior stain and water repellency

Introduction

Textiles in applications such as personal protection, sportswear and furniture, for example, use the properties of fluorocarbons to provide the water and stain repellency required of these demanding applications. The fluorocarbons used are based on an eight-carbon chain and are often referred to as PFOS or PFOA.

Such materials are harmful and are known to accumulate in the environment. Consequently the Environmental Protection Agency has introduced a significant new use rule to restrict these materials, impacting their use and availability for textile applications.

The TEXSHIELD programme aims to provide the European textile market with alternative low-VOC material sets to replace the C8 fluorocarbons whilst maintaining performance in terms of repellency and durability.

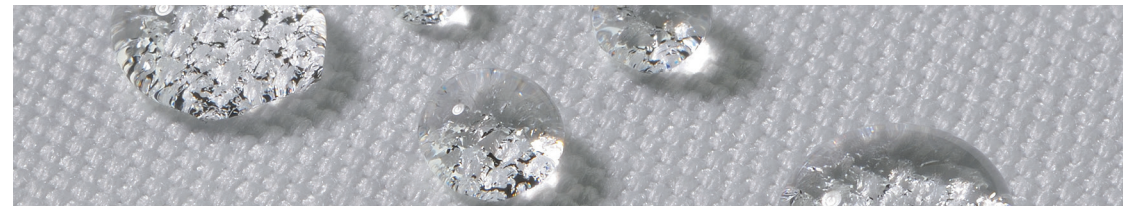


Structure of a C8 fluorocarbon, perfluorooctanoic acid or PFOA

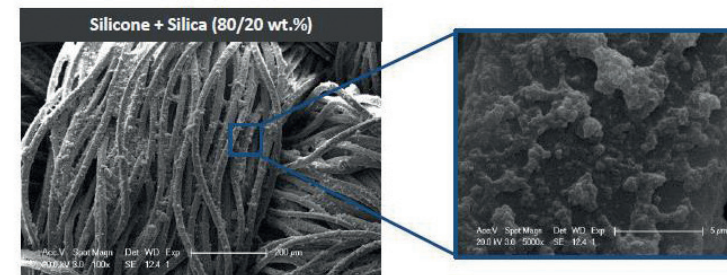
Approach

Research partners are investigating a number of different routes to achieve the goal. The materials that are being developed use a combination of multi-scale structure and surface energy to control repellency performance, including:

- Optimisation of commercially available products and processes
 - coatings based on C6 and C4 fluorocarbons, modified topography and 100% solid solutions
 - UV and plasma curing to reduce energy and material consumption
- Development of novel, reduced-fluorine-content chemicals
 - water based siloxane systems with multi-scale silica functionalised with novel low fluorine content
- Development of fluorine-free treatments
 - novel coating solutions based on multi-scaled particles with oil and water repellent functionality, bonded directly to the textile surface



Cotton fabric treated with a TEXSHIELD product



Multi-scale texture of a TEXSHIELD product on a fabric weave

Appendix B

Presentation overview



Reduced fluorine content oil and water repellent treatments for technical textiles

- Fluorocarbons are currently used to provide oil and water repellency for textiles in applications such as personal protection, sports ware and furniture.
- The use of such fluorocarbons is being restricted by the Environmental Protection Agency.
- The project objective is to provide alternative materials to replace these fluorocarbons, whilst maintaining repellency and durability.



Funded from the European Union's Seventh Framework Programme for research, technological development and demonstration.

Grant agreement no. GA315497



Research approaches:

1. Optimisation of commercially available products & process
2. Development of novel reduced fluorine content coatings
3. Development of fluorine free treatments



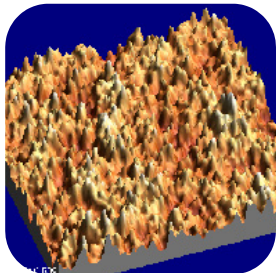


Optimisation of commercially available textile products & processes

HoGent

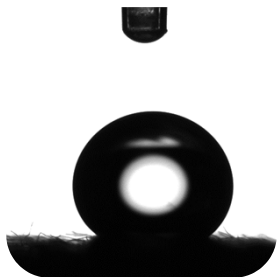
Scanning of COMMERCIAL FLUOROCARBON SYSTEMS:

- observed repellent effects are $C8 > C6 \gg C4$
- PFOS/PFOA legislation $\rightarrow < 1 \mu\text{g}/\text{m}^2$ ~~C8 FC~~



Tested BOOSTING METHODS for C6/C4 fluorocarbons:

- Macro level: waxes (paraffins / fatty acid esters)
- Micro/nano level (roughness): hydrophobic nano-silica; SMI/SMA nano-sponges; reactive β -cyclodextrins



ALTERNATIVE RESEARCH ROUTES:

- A. On chemical level: sol/gel based hydrophobic/oleophobic products (air curing /LAD features)
- B. On technological level: Nanofics (Europlasma) as vacuum plasma fluorocarbon nano-layer deposition

Application methodologies

+ padding + spraying + foam + kiss roll + digital

Future orientation profile



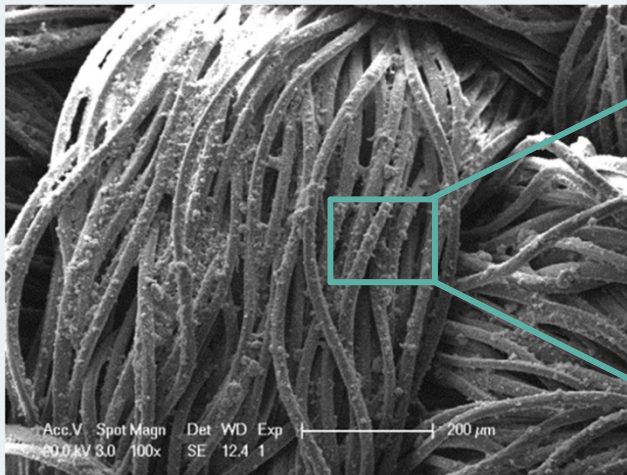
Development of Novel reduced fluorine content coatings



From superhydrophobicity...

Coating of a water based siloxane system with multi-scale silica

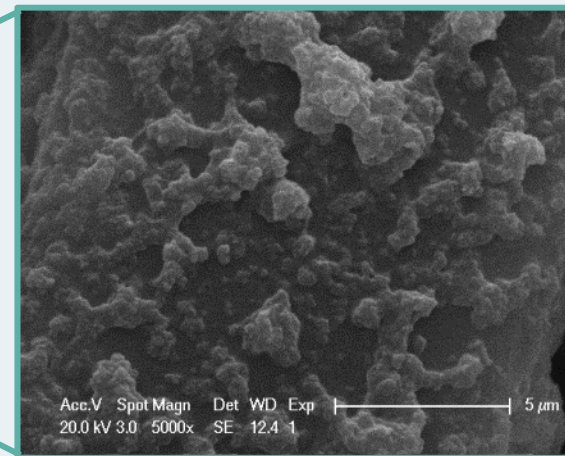
Superhydrophobic (contact angle $> 150^\circ$) and self-cleaning (sliding angle $< 10^\circ$) properties



To oleophobic textiles

Production of novel monomers with reduced fluorine content

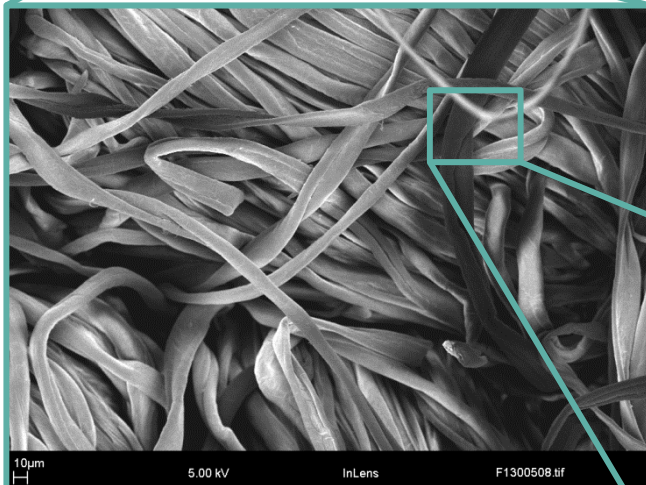
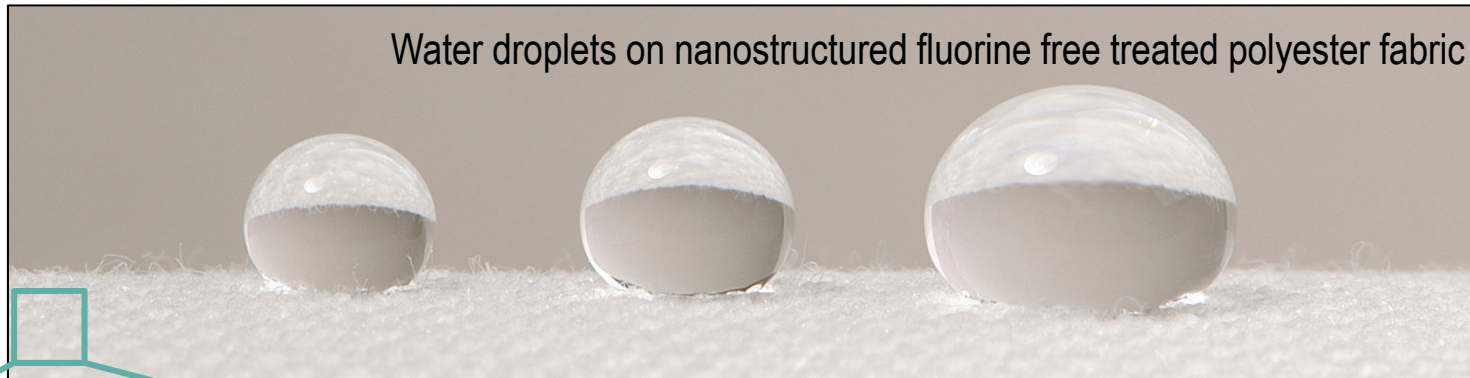
Post-functionalization of treated fabrics to increase their repellent behaviour and reach oleophobicity



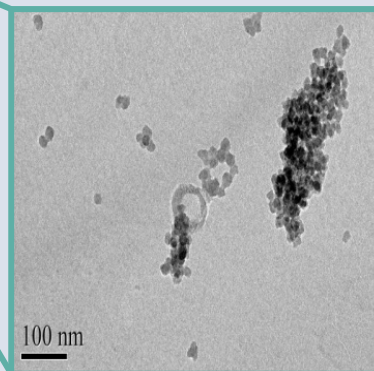
Application methodologies

Spraying or Padding or Kiss Roll

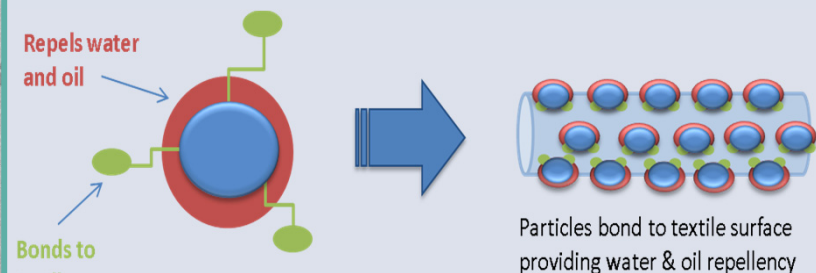
Development of Novel **fluorine free** and water based coatings



Development, synthesis and characterisation of novel fluorine free coating solutions based on multi-scaled nano-particles with high repellent functionality, bonded directly to the textile surface



Technical R&D principle





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Appendix C

Association newsletters

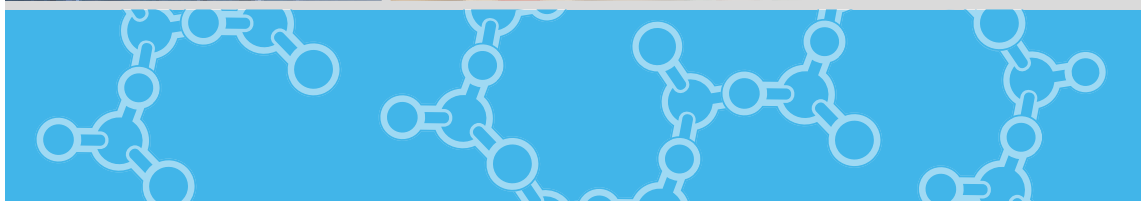
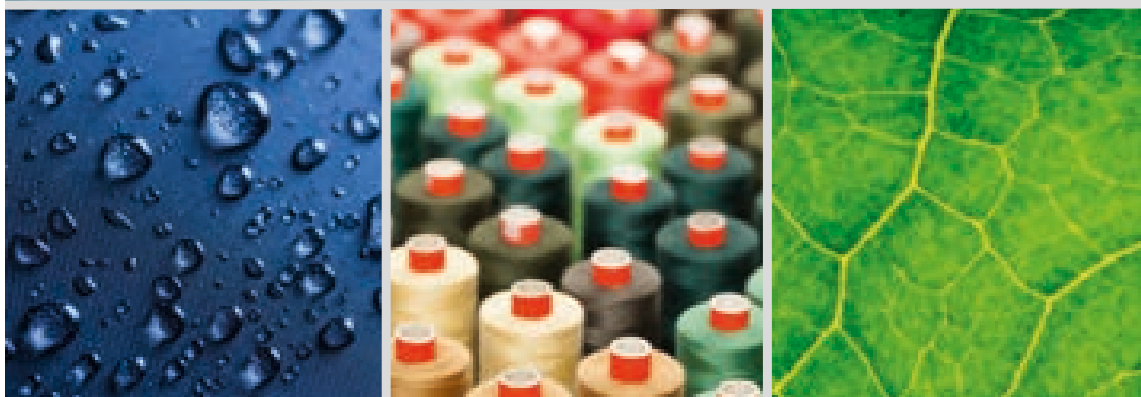
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VOORWOORD



3^{de} editie Digital Textile Congress 'The Change is clear: from Analog to Digital' georganiseerd door UNITEX in samenwerking met Hogeschool Gent-TO₂C was een succesformule!

Het congres werd georganiseerd op 4-5 september jl. en vond plaats in het auditorium D van de Hogeschool Gent. Beide dagen werden hoogdagen voor onze organisatie. Het congres werd bijgewoond door meer dan 265 deelnemers, met opvallend een grote aantal buitenlandse deelnemers komende van verschillende continenten. Deze conferentie had de ambitie om de deelnemers te informeren, signaleren en kennis te laten maken met de laatste ontwikkelingen op het vlak van de verschillende componenten van het digitale drukgebeuren (lees: inkjet inkten, hardware, software en textielmaterialen). Ook een belangrijk luik van het congres handelde over recente ontwikkelingen en onderzoek in excellerende binnen- en buitenlandse onderzoekscentra. Behalve technologische aspecten kwamen ook marktontwikkelingen, nieuwe business modellen, economische en ecologische aspecten aan bod.

Naast de kwalitatieve technische lezingen (totaal 24) was de agenda van het congres ook bedoeld om de deelnemers te voorzien van een uitgebreide beoordeling van de verschillende aspecten van digitale technologieën waarbij naast printing ook het functionaliseren en coaten met digitale technologieën aan bod kwamen. De formele presentaties, de informele netwerksessies en demonstraties op digitale printers van o.a. functionele inkten op de verschillende standen droegen bij tot een unieke, interactieve omgeving voor de deelnemers. Op basis van de vele positieve reacties tijdens en na het congres kan men het congres werkelijk geslaagd worden noemen, een succes dat ook internationale organisaties en tijdschriften niet is ontgaan. Het volgende UNITEX-nummer zal hierover uitvoerig worden ingegaan.

De grote belangstelling zowel op nationaal als internationaal niveau, illustreert de continu groeiende belangstelling voor dit actueel thema. Het digitale gebeuren is zeker een belangrijke economische component waarvan het belang op korte termijn nog verder exponentieel zal aangroeien. Met dit congres hebben we dit aspect in de eerste plaats willen uitdragen en hebben we tevens innoverende bedrijven en onderzoekscentra willen promoten naar het buitenland toe.

Het succes van een dergelijke grote manifestatie is echter enkel mogelijk dankzij de gewaardeerde bijdrage van de vele, boeiende sprekers, alsook de bedrijven die ons daadwerkelijk gesteund hebben. Dank ook aan de Hogeschool Gent voor het gratis ter beschikking stellen van de infrastructuur. Mogelijks volgt er een 4^{de} editie in 2016.

Prof. Dr. Marc Van Parys
Voorzitter UNITEX

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ZS-MICROSILVER KLEINE PARTIKEL MIT GROSSER WIRKUNG

Bereits seit Jahrtausenden ist die antimikrobielle Wirkung von Silber bekannt. Damals verwendet in Form von Münzen in Silberkrügen oder Milchkannen zur Konservierung von Lebensmitteln, Schmuck, Zahnfüllungen oder Silberbesteck, stehen uns heute dank der unterschiedlichen Herstellungsverfahren und Verarbeitungstechniken ganz neue Möglichkeiten offen die es erlauben die positive Wirkung des Silbers gegen Bakterien und andere Mikroorganismen zu nutzen.

Als beschichtete Oberflächen in Kühlschränken oder anderen Haushaltsgeräten ist Silber schon seit längerem im Einsatz. Weiterhin wird es inzwischen bereits seit Jahren auch in der Textilindustrie eingesetzt. Dies geschieht in Form von Partikeln innerhalb von synthetischen Fasern oder zusätzlicher nachträglicher Ausrüstungen/Beschichtungen. Allgemein sind antimikrobiell ausgerüstete Textilien seit Jahren auf dem Vormarsch. Dies resultiert einerseits aus dem Wandel der Einsatzfelder von Textilien, die einen Schutz vor Bakterien, Pilzen und Viren verlangen, wie z.B. Geo- oder Medizintextilien. Andererseits wird dem steigenden Hygienebedürfnis vieler Verbraucher Rechnung getragen und antimikrobiell ausgerüstete Textilien im Bereich Bekleidungs- und Sporttextilien sowie im Heimtextilbereich eingesetzt. Dabei finden verschiedene Substanzen Anwendung:

organische Wirkstoffe:

- PHMB, PHMG,
- Chitosan,
- Benzisothiazolidine,
- Chlorierte Diphenylether (z.B. Triclosan),

anorganische Wirkstoffe:

- Silber,
- Silbersalze (z.B. Silbernitrat, Silberchlorid),
- Metallsalze,
- Iod/Iodid.

Silber und seine Wirkung

Silber kann in drei unterschiedlichen Formen als antimikrobiell wirkende Substanz eingesetzt werden. Dabei unterteilt man in metallisches Silber, Ionen und Silbersalze. Diese Varianten können in Form verschiedener Partikelgrößen bis hin zu Nanopartikeln vorhanden sein. Mögliche Aufmachungsformen sind dabei die sogenannte Lösung worunter lösliche Silbersalze, z.B. Silbernitrat fallen und die Dispersion, welche Nanosilber, kolloidales Silber und Suspension beinhaltet. Die mikrobiologische Wirkung des Silbers beruht auf der Bildung von Silberionen, die aus Silberoxid an der Oberfläche der Partikel entstehen. Dazu sind Luftsauerstoff und Feuchtigkeit aus der Umgebung notwendig, welche auf die konstante Dicke, von der Partikelgröße unabhängige, Oxidschicht treffen. Diese Silberionen binden an die negativ geladenen Bereiche der Proteine einer Zelle und zeigen dann mehrere Wirkmechanismen. Zu diesen gehören im Wesentlichen:

- die Störung lebenswichtiger Funktionen durch Inaktivierung von Transmembrantransporten,
- die Inaktivierung von Enzymen in der Zelle,
- die Zerstörung der Bakterien-DNA, wodurch verhindert wird, dass die Bakterien sich replizieren können.

Nach dem Aufkommen von Antibiotika zur Bekämpfung von Krankheiten und Bakterien ließ die Bedeutung von Silber in diesem Bereich stark nach. Jedoch greifen die unterschiedlichen Antibiotika zumeist nur an einem bestimmten Punkt an, während Silber auf den verschiedenen Wirkmechanismen beruht und damit wesentlich effektiver wirken kann. Desweiteren werden gegen Silber im Gegensatz zu Antibiotika keine Resistenzen ausgebildet, was es auch gegen Erreger wie z.B. MRSA (multiresistenter *Staphylococcus aureus*) einem in der Öffentlichkeit bekannten „Krankenhauskeim“ einsetzbar macht.

Je größer nun die Oberfläche der metallischen Silberpartikel ist desto mehr Silberionen können in Summe gebildet und abgegeben werden. Das bedeutet, dass die Wirksamkeit bei Systemen mit möglichst großer Oberfläche dementsprechend auch stärker ausfällt. Daraus resultierte der Trend möglichst kleine Silberpartikel mit einer großen Oberfläche als antimikrobiell wirkende Substanz einzusetzen.

Nanotechnologie

Durch die Kombination von Silber und der Nanotechnologie ergeben sich insbesondere aufgrund des hohen Oberflächen/Volumen-Verhältnisses ganz neue Materialeigenschaften. Allein das mikrobiologisch wirksame Volumen nimmt anteilig zum Gesamtvolumen des Materials mit abnehmender Partikelgröße durch die Erhöhung der Gesamtoberfläche signifikant zu. Dadurch entstehen Vorteile wie eine deutliche Materialersparnis, da wesentlich geringere Mengen benötigt werden um gleichwertige Effekte zu erzielen. Dies ist besonders im Hinblick auf nachhaltige Entwicklung ein wichtiger Faktor. Ein weiterer Aspekt ist die schnellere Wirkung, da durch die größere Oberfläche mehr Silberionen gebildet und an die Umgebung abgegeben werden. Weiterhin ist es möglich, feinere Partikel zusätzlichen Anwendungsgebieten zugänglich zu machen. Ein Beispiel wäre hier das Integrieren von Silberpartikeln in synthetische Fasern, was nur bei der entsprechenden Partikelgröße möglich ist.

Die oben genannten Vorteile führten zu einem Boom von Nanosilberprodukten seit Beginn des neuen Jahrtausends, der in den vergangenen Jahren durch verschiedene potentielle Risiken bei Nanoprodukten gestoppt wurde.

Problematisch hierbei ist der Umstand, dass Nanopartikel und deren Wirkung auf den Menschen noch nicht ausreichend erforscht sind. So werden Nanopartikel verdächtigt durch ihre geringe Größe hautgänglich zu sein, also durch die Poren in der Haut in den Körper wandern zu können. In welchem Ausmaß dies wirklich geschieht und welche Auswirkungen es auf den Körper hat, ist jedoch noch nicht geklärt. So wurde z.B. bereits von Seiten des Europäischen Parlaments eine Deklarationspflicht für die Verwendung von Nanopartikeln in Kosmetikprodukten gefordert.

ZS-MICROSILVER

Um dieses Risiko zu vermeiden und dennoch die Vorteile von Silber in der Textilindustrie nutzen zu können, hat

die Zschimmer & Schwarz Mohsdorf GmbH & Co KG ein neues System namens ZS-MICROSILVER entwickelt welches den Forderungen der Biozidverordnung EG Nr.1451/2007 unterliegt. Dabei handelt es sich um eine spezielle Formulierung, bei der Silberpartikel verwendet werden, welche eine durchschnittliche Größe von 8-10 µm aufweisen, also Mikropartikel sind. Durch ein besonderes patentiertes Herstellungsverfahren wird das Silber in eine einmalige Struktur gebracht, welche einem Schwamm oder einer Koralle ähnelt (Bild 1 und 2 : Silberpartikel mit Korallenstruktur aus dem Produkt ZS-MICROSILVER). Diese mikroporöse Struktur erlaubt es nun, dass die Silberpartikel in Mikrogröße vorliegen, jedoch trotzdem eine außergewöhnlich große Oberfläche von bis zu 5 m²/g besitzen, im Vergleich zu normalen Mikropartikeln mit ca. 0,3-0,5 m²/g. Durch diese vergrößerte Oberfläche ist es möglich, deutlich mehr Silberionen auszubilden als es bei normalen Partikeln der Fall wäre (Bild 3 : ZS-MICROSILVER appliziert mit einem Bindersystem auf PES).

Nutzt man reines metallisches Silber in elementarer Form, so sieht man sich besonders in Nassprozessen wie es in der Textilindustrie an der Tagesordnung ist besonderen Herausforderungen ausgesetzt, da das Silber aufgrund seiner hohen Dichte und dem damit verbundenen Gewicht eines Partikels sehr leicht absinkt. Das größte Problem ist es also, die Partikel auch in einer wässrigen Flotte so lange in Schwebe zu halten, dass sie gleichmäßig auf einem Textil appliziert werden können. Da Silber selbst keine Affinität zur Faser besitzt, muss es mit Hilfe eines Binders auf die Faser aufgebracht werden. Abhängig vom Einsatzbereich und

den gewünschten zu erzielenden Effekten kann dieser Binder oder weitere Additive variieren. So ist es möglich, neben der Waschpermanenz noch weitere Eigenschaften wie z.B. eine Hydrophilie zu erzeugen um den Anforderungen der einzelnen Endanwendungen gerecht zu werden. Mit Hilfe der entsprechenden Komponenten zusätzlich zum ZS-MICROSILVER war es so möglich, bei Mikrofaserwischtüchern, welche für den Haushaltsbereich verwendet werden, die notwendige Hydrophilie sowie Waschpermanenzen von bis zu fünfzig Wäschen bei 60° C (siehe Bild 4 : antibakterielle Wirksamkeit bezogen auf die Waschpermanenz bei Haushaltswäschen) zu erzeugen.

Anwendung in Kosmetikartikeln und medizinischen Produkten

Das Silber welches als Basis zur Herstellung des ZS-MICROSILVER dient wird bereits seit vielen Jahren hauptsächlich im Kosmetiksektor sowie im medizinischen Bereich eingesetzt. Wichtige Anwendungsfelder sind dabei spezielle Cremes, Zahnpasten, Salben, Wundauflagen, Verbandsmaterialien oder Katheter. Im Bereich Hautpflege, in dem dieses spezielle Silber seit 2005 Anwendung findet, veranschaulicht Bild 5 am besten die hervorragende Wirksamkeit. Dargestellt ist ein Arm eines Neurodermitispatienten nach den unterschiedlichen Behandlungszeiträumen mit einer speziellen Salbe, die das Silber enthält welches zur Produktion von ZS-MICROSILVER genutzt wird. Bereits nach vierzehn Tagen ist eine deutliche Verbesserung des Hautbildes sichtbar. Nach 28 Tagen ist keinerlei Hautveränderung mehr zu erkennen.



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Zusammenfassung

Die antimikrobielle Ausrüstung mit Silberprodukten erlangt aufgrund der hohen und vielfältigen Wirksamkeit der Systeme eine immer größere Bedeutung in der Textilindustrie. Wegen der noch nicht vollständig erforschten Risiken, die die Verwendung von Nanosilber mit sich bringt, stellt die Partikelform und -größe ein wichtiges Kriterium zur Verwendung solcher Produkte dar. Mit ZS-MICROSILVER gibt es nun ein Produkt am Markt, welches aufgrund der speziellen Struktur und der damit verbundenen großen Oberfläche die Vorteile des Silbers besonders effektiv nutzbar macht. Aufgrund der langjährigen Verwendung und den damit verbundenen Langzeittests und Zertifikaten dieser speziellen Silberpartikel im medizinischen und kosmetischen Bereich, empfiehlt sich der Einsatz von ZS-MICROSILVER besonders für Textilien in diesen Einsatzgebieten. Dennoch ist es so konzipiert, dass es auch in anderen Segmenten wie z.B. dem Heimtextilbereich erfolgreich eingesetzt werden kann.

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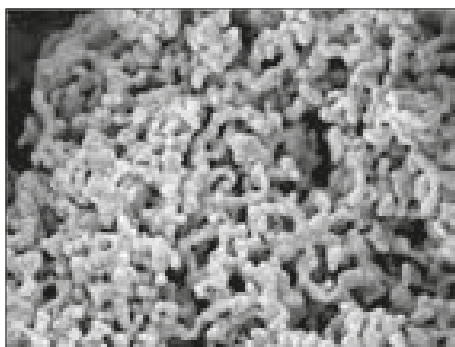


Bild 1

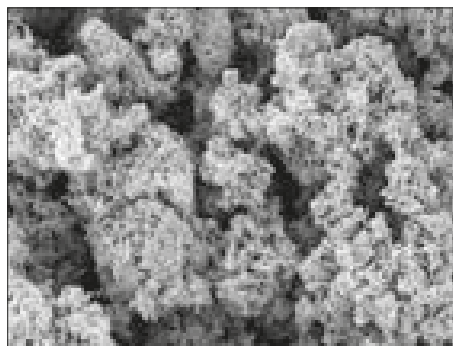


Bild 2

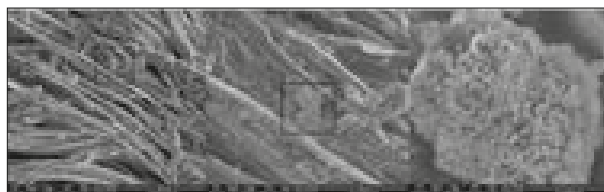


Bild 3

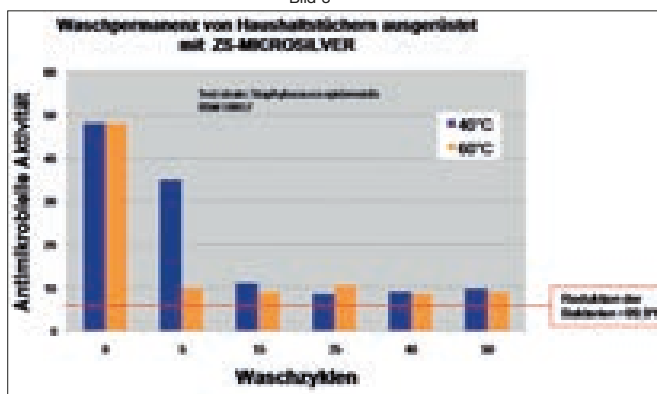


Bild 4

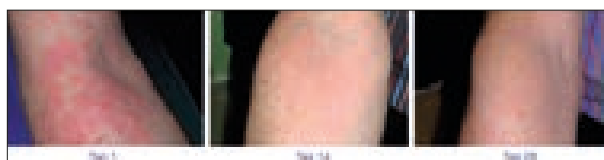


Bild 5

OERLIKON BARMAG'S EVOTAPE, THE (R)EVOLUTION OF TAPE PRODUCTION

by Susanne Beyer and Jens Weinhold

The technology used for manufacturing tapes has remained the same for many years now. Although minor optimizations have been achieved with regards to the production speed, there have been no quantum leaps in the technology. For this reason, there has been very little replacement investment over the years.

However, the broad range of applications for tape yarns ensures constant growth, hence making new investments due to expanding capacities the norm. The application possibilities for extruded tapes range from carpet backing fabrics, textile packaging via agricultural textiles all the way through to the increasingly covered area of geotextiles.

In addition to systems and yarn quality, the operating expenses (OPEX) are a very considerable decision-

making criterion for investors in view of ever-growing pressure on margins. Traditionally, Oerlikon Barmag extrusion systems are high-end with regards to the quality of the systems, the process and the yarn. To this end, the focus during the development of a new systems concept for tapes was on production costs and energy consumption.

Efficient tape extrusion with the EvoTape concept

With the EvoTape, a process for manufacturing tapes has been developed that has literally revolutionized the process used to date: depending on the configuration, the systems output can be increased by up to threefold.

The EvoTape operates with a cold pre-drawing. In the subsequent, second drawing stage, the tapes are

'lighter'; they take on the heat from the hot-air oven more easily. These two drawing stages result in superior process stability, reaching the same tenacity values with higher speeds or superior properties at the same speed.

The splitting of the drawing process also ensures a low overall draw ratio. As the cut width of the overall drawing is defined, this is also reduced. Consequently, more tapes can be manufactured which, in addition to the higher process speed, increase the system's output. Overall, the specific energy consumption per kg of output is therefore considerably reduced.

Cost advantages as a result of greater process stability

A further argument for the new EvoTape concept is its superior process stability : the changed process reduces tape breakages compared to conventional processes. Furthermore, the lower temperature transfer, for example during hot-air drawing, simplifies additional string-up of torn tapes.

WinTape – more output, less waste

Higher speeds reduce the package running time. This, in turn, requires an automatic winder. The automatic WinTape precision winder supplements the EvoTape concept in the take-up stage. Electronic crossing angle(s) ensure(s) perfect package build with optimum quality for the downstream further processing.

As the tapes dwell in the yarn guide during package transfer, automatic take-up of folded tapes is possible. Further plus point: with two parking positions for full packages, the system configuration for carpet backing fabrics can operate for 24 hours without package transfer, hence simplifying shift work.

Furthermore, identical package running lengths, which are common in an automatic take-up concept, reduce waste. Operating the WinTape in conjunction with the EvoTape systems opens up further benefits offered by the new precision winder : production waste occurring during package transfer can be directly routed back to the extruder.

EvoTape concept is available for many processes

Following the successful market launch for manufacturing tapes for carpet backing fabrics, the EvoTape process is now also revealing its strengths for other products. The focus of the development work over the past few months has been on the verification of speed potentials and a lower overall draw ratio for further products : to this end, the new concept currently offers solutions for the manufacture of carpet backing, agricultural textiles and geotextiles.

Carpet backing

The system configuration for carpet

backing generates the familiarly high and, above all, homogeneous tape quality at simultaneously considerably higher process speeds. The EvoTape offers a process speed of 400 m/min : by contrast, extrusion systems for carpet backing used to date operate at a speed of 320 m/min, while systems manufactured before 2010 produce at just 180-280 m/min. To this end, the considerably superior productivity of the new EvoTape system in conjunction with the WinTape take-up unit provides yarn producers with a significant expansion in capacity without substantial additional space requirements.

In this application configuration, the energy savings amount to up to 50 % compared to equipment manufactured during the 1980s and 1990s, which is quite permissible for a system lifespan of thirty years and more.

Baler twine

The potential is particularly apparent in the case of baler twine : here, it is – in addition to higher process speeds – above all the reduction of the overall draw ratio that is significant. With this, it is possible to virtually double the output compared to established processes.

While the titres of carpet backing fabrics lie between 300



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and 1500 dtex, the titres for baler twines are 20'000 dtex and higher. Instead of tape widths of between 0.9 and 2.5 mm and thickness ranging from 35 to 45 µm, tapes with widths of between 20 and 90 mm and thicknesses of between 75 and 100 µm can be manufactured. The tapes are profiled or fibrillated and are twisted in the downstream process and wound onto tubeless packages.

The focus of the process is on high tenacities for the yarn and high tenacities for the knots when tying off the bales. To achieve the high tenacities desired, the tapes are drawn at a ratio of 1:12 in currently common standard processes. The high draw ratios mean that in the case of products with 70'000 dtex, for instance, only three to four tapes can be run in parallel on the system.

With the EvoTape, these draw ratios can be reduced to just the one seventh or one eighth. Lower draw ratios simultaneously also mean cutting narrower tapes, hence allowing more tapes to fit on the godets. The output of the system is virtually doubled in conjunction with the speed increase from 250 to 350 m/min : from 500 kg/h (common market standard) to up to 1000 kg/h (EvoTape / WinTape concept). To this end, the new systems concept saves space, handling and – above all – energy. Energy consumption of just 0.4 kWh/kg is a further decisive argument for the EvoTape / WinTape solution.

Geotextiles

And the EvoTape process also showcases its advantages for geotextiles and agricultural textiles. Here, high tenacities are achieved with lower overall draw ratios as well. For some applications, the addition of LDPE as a 'drawing aid' can be dispensed with, additionally securing a reduction in raw material costs for this process.

EvoTape & WinTape – the perfect duo

In an age in which investment decisions are also influenced by sustainability considerations, the EvoTape / WinTape concept has set a new standard. Greater output with the reduced deployment of energy and personnel, less waste and a faster return-on-investment (ROI) make the new tape system from the Chemnitz-based Oerlikon Barmag extrusion technology experts a real alternative.

With the EvoTape / WinTape duo, the tape market now has a concept that is also a prudent replacement investment as a result of its immense efficiency. The concept only unveils its full potential as a duo of perfectly

coordinated components: here, high extrusion process speeds can only be efficiently realized with an automatic winder. Conversely, although connecting an automatic winder to a standard extrusion system makes sense, it is unable to reveal its entire performance spectrum.

In terms of tape quality, the EvoTape & WinTape combination makes no compromises : the familiarly superlative product quality promises tape manufacturers a position within the high-end market.



Picture 1: With more than 1000 installed extrusion systems across the globe, Oerlikon Barmag is the market leader in high-end tape systems.



Picture 2: Electronic crossing angles ensure perfect package build with optimum quality for the downstream processing.

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ENVIRONMENTALLY AND DURABLE OIL AND WATER REPELLENCE FINISH ON TECHNICAL TEXTILES - PART 1

European SME-association project (NWTEX, UNITEX, Up-TEX, Techtera) (2012-2015)

Prof. Dr. M. Van Parys, I. Garez, F. Godefroidt, T. Van Hove*

1. Context

In the current market, the well-known brands of textiles are usually protected with a fluorocarbon based treatment to provide high durability and a stain repellent finish. The most common treatments are based on impregnation

of perfluorocarbons (PFCs) into the fabrics, due to their good water repellence properties. Unfortunately, the best performing PFCs, known as C8 (due to the 8 carbon atoms in their backbone chain), also raise significant health and environmental concerns, by being very

stable in the environment (bio-accumulative). Research has indicated that they are possible carcinogens and, consequently, eight carbon PFCs (PFC-C8) are currently subject to high regulatory pressure. The products will be banned end 2015 (?).

Various alternatives have been considered. Shorter chain materials such as those based on C6 and C4 chemistry are more rapidly degraded in the environment, but in the longer term any PFC material may have potential issues with sustainability and ecological performance.

Long-chain PFC (C8-Chemistry)	Short-chain PFC (C6-chemistry)
Very persistent in environment	Less persistent in the environment
Bio-accumulative	Not bio-accumulative
Long half-time in human body	Less accumulation o-in human body
Very toxic	Expected to be far less harmful to human health or environment at environmentally relevant concentrations

Additionally, neither the shorter chain PFCs nor the current silicone- based alternatives have been developed to a point where they deliver the necessary performance to meet the industry's durability and repellence standards. Consequently, we, the Textile industrial community, need an alternative to PFC-C8 to be developed, which is durable and equally performs. To emend the solution will require both chemical and process expertise beyond that available in our community and, consequently, we are seeking funding to employ experts in the field to develop a solution.

The main purpose of the TEX-SHIELD project is to address this by:

- Eliminating problems with C8 PFCs' by-products associated with textile treatments.
- Providing a cost-effective alternative treatment with durable anti- soiling/anti-staining characteristics
- Reducing the total fluorine content in the treatment by introduction of new sol-gel derived additives in the form of nanoparticles or inorganic-organic hybrid networks
- Demonstrating performance on a representative scale, with regards to key technical parameters including soil resistance, abrasion resistance, cleaning cycle resistance
- Creating additional advantageous functions such as antistatic and antimicrobial characteristics to improve stability against mechanical, chemical impacts. Developing flexible and versatile solutions for a broad range of textile supports different in structure (woven, knitted) and basic fibres (natural, synthetic or mixtures).
- Developing a solution with a low ecological footprint, based on REACH-proof chemicals and taking in to account safety and health issues.
- Providing a full Life Cycle Analysis (including washability cycle) and assessment of techno- economic benefits, via benchmarking against current products.
- Providing the necessary technological transfer and training via SME associations to ensure awareness and take up throughout the EC.

2. Health issues addressed by TEX-SHIELD

The current fluoropolymer-based stain repellent treatments are known to pose significant health concerns. PFCs are either produced/manufactured by electro fluorination or telomerisation, which give out unintended by- products of perfluorooctane sulphonates (PFOS) and perfluorooctanoic acid (PFOA respectively). PFOA has the molecular formula $C_8F_{15}O_2H$ while PFOS is $C_8HF_{17}O_3S$. During service life, the PFC treatment is gradually leached from the fabric, and decomposes to PFOA and PFOS. Both PFOA and PFOS are very stable in the environment and, hence, are a significant ecological threat, as the levels reached in higher organisms (including people) can become significant. Consequently, the U.S. Environmental Protection Agency (EPA) and some of the biggest fluoropolymer manufacturers have cooperated in studies and have collected and shared their findings.

The following results have been highlighted from this research about PFOA and PFOS. They are very stable in the environment, so they do not readily degrade. Once they enter the human body they are eliminated very slowly. This means that they remain in the body for relatively long periods of time: the half-life in humans is about 4.5 years. They cause adverse effects in laboratory animals that have been given high doses over a long period of time. The Biocentration Factor (rainbow trout) of different products is given in table 1.

EPA classifies PFOA as carcinogenic in animals and some developmental toxicity studies in rats resulted also in death¹. In terms of regulation in Europe, the Environment Agency Wales in the UK assessed the risks to health and the environment from PFOS. PFOS show to cause death in both rats and monkeys at doses of 6 and 4.5 mg/kg per day respectively in repeat dose 90 days toxicity studies. Health concerns coming from the use of PFOS and PFOA chemicals have found significant interest also among different countries of the European Union such as Denmark, Germany, Spain and Italy.

To date, significant adverse effects have not been found in the general human population. However, perfluorooctane sulphonates have been recognised to be bio-persistent, bio-accumulative and toxic, which has led to restrictions being adopted in the market in regards to the use of PFOS in the UK. Studies have been carried out in order to assess the health hazards of the workers within the eight major fluoropolymer manufacturers (eg 3M, Dupont, Arkema). High levels of fluorochemicals like PFOA appear to be a risk factor for cancers of the male reproductive system. Furthermore, medical studies recorded significant increases in the thyroid-stimulating hormone (TSH) with consequent altered thyroid response in workers with higher PFOA blood levels. Studies have also shown that PFOA alters reproductive hormones in the male, causing increased levels of oestrogen and abnormal testosterone regulation. PFOA has also long been known to damage the immune system and in the most recent study scientists learned that exposures to PFOA early in life are more harmful than in adulthood. In summary, toxicological studies have demonstrated a range of adverse health effects due to PFOS and PFOA, these effects include hepatotoxicity, developmental toxicity, immunotoxicity, hormonal effects and carcinogenicity.

During the project focus will be on alternative, less toxic and harmful products such as C6 (PFHS) and C4

(PFBS) chemistry and others. Some data concerning fluorochemicals are given in table 1-2.

Table 1: BCF-factor of different fluorochemicals

Environmental Effects Assessment Bioconcentration Factor (BCF): Rainbow Trout		
Chemical	Liver	Blood
PFBS (C ₈)	< 1	< 1
PFHS (C ₈)	54	59
PFOS (C ₈)	2,900	3,100
PFOA (C ₈)	12	25
PFDA (C ₁₂)	1,100	1,900
PFUNA (C ₁₂)	3,800	5,500
PFDOA (C ₁₂)	11,000	18,000
PFTA (C ₁₄)	8,700	20,000

PFBS: No risk for secondary poisoning

Martin JW, Mabury SA, Solomon KR, Muir DCG. Bioconcentration and tissue distribution of perfluorinated acids in rainbow trout (*Oncorhynchus mykiss*). Environ. Toxicol. Chem., Vol 22, No.1, pp. 196-203, 2003.

Table 2: Environmental Effect Assessment of fluorochemicals

Environmental Effect Assessment Predicted No Effect Concentration (PNEC for aquatic organisms) PFOS · PFOA · PFBS				
Substance	Most sensitive water organism	Value µg/l	Assessment factor	PNEC µg/l
PFOS	<i>Pimephales promelas</i>	300	10	30
PFOA	<i>Daphnia magna</i>	22000	100	220
PFBS	<i>Daphnia magna</i>	500000	50	10000

Use of appropriate assessment factor (available data)

Available data	Assessment factor
at least one short-term L(E)C ₅₀ from each of three trophic levels of the bio-system (fish, <i>Daphnia</i> and algae)	1000
one long-term NOEC (either fish or <i>Daphnia</i>)	100
two long-term NOECs from species representing two trophic levels (fish and/or <i>Daphnia</i> and/or algae)	50
long-term NOECs from at least three species (normally fish, <i>Daphnia</i> and algae) representing three trophic levels	10

3. Approach to market

TexShield is an European SME-Association project, partners are NWTEX (UK), UNITEX (BE), Up-Tex (FR) and Techtera (FR) (see www.unitex.be and <http://www.texshield-project.eu>). The SME Associations within this project wish to ensure that the solution to the problem described above is made available for exploitation to their members. The approaches identified by the RTDs in delivering the necessary performance attributes (foreground), will be owned exclusively by the SME Associations. This will be used to ensure that, following the project, the approach will be licensed to their interested members for exploitation. Neither the RTD nor the SME partners in the project will receive any property rights from this project. To emend the problem we are likely to require the manufacture of a nanomaterial solution, derived by a sol-gel approach, this will fall outside the expertise of the members of SME associations in the field of textiles. It is, therefore, anticipated that IP-rights will be used by the SME associations to establish a supply infrastructure that makes available the active multifunctional materials that can then be accessed by the SME end-users.

As SME Associations (NWTEX, Up-Tex, UNITEX, Techtera), we will direct the research activities of the

research partners, validate the results of the project by field trials at the demonstrators and disseminate the final project results to our members. The SME textile printing/dyeing participants in this project will provide the technical requirements and contribute to the research and demonstration activities. They will benefit from the results through advanced knowledge of the available solutions and consequent early implementation. SNano is an SME in the field of nanomaterials, who will ensure the manufacturability of the solution and benefit by exploiting the knowledge gained in advanced sol-gel systems. The delivery of the necessary high durability stain-repellent performance to match that currently available on the market requires overcoming a number of technical challenges. The first significant challenge is the identification and development of a suitable molecular structure that incorporates both low surface energy properties (hydrophobic/oleophobic properties) and suitable binding groups to facilitate chemical bonding to the fibre surface to promote durability. Whilst it is desirable that the former property should be achieved without the use of fluorination, it is expected that a significant reduction in fluorine content both by amount of fluorinated agent and by the fluorine content of the agent will provide an expedient intermediate route to the ultimate elimination of fluorine. Alternatives to be explored will be hydrocarbon chains that contain a small number of carbon atoms in their backbone such as C6 and C4. The low surface energy aspect can therefore be provided by short chain PFCs or hydrocarbons that are long or short chain. The actual performance will be dictated in detail by the selection. Binding these low energy groups to the textile can be achieved by the use of suitable cross-linking agents that are widely known. These include amine, epoxy and isocyanate groups.

The second challenge for the development of the treatment will be to incorporate these cross-linking groups with the low energy groups to form a nanoscale building block prior to application on the textile. The development of such building blocks is the central aim of sol-gel technology, which chemically manipulates functional silanes to produce the required nanostructure.

The third challenge to be faced is the impregnation/deposition technique, in order to produce a suitable layer on the surface of the fabric without excessive loading, which could alter the 'feel' of the material, with regard to weight or stiffness. It is also desirable to use the minimum loading possible for cost and environmental reasons. It is expected that a spray, print or immersion process will be required, with varying parameters of loading, dispersion and curing in order to optimise against the above properties. The development of the above materials and corresponding deposition process requires detailed characterisation and analysis based on in-depth understanding in the field. This is a significant technical challenge, since these materials are structurally complex. One particular advantage of the PFC-C8 treatments over its current alternatives is that they result in a very thin film covering each filament and fibre in the textile. This thin film has little effect on the stiffness or feel of the textile, but a significant impact on the functional characteristics.

Even though the SME Associations and the SME members of this consortium are experts in the field of fabrics, we lack the R&D expertise to overcome the technical barriers. Our survey of expertise available has convinced us that there is

no single Research provider with a sufficiently broad range of technological knowledge of both chemical formulation and textile finishing. Consequently, we have recruited 3 RTD performers with the necessary skills to deliver this project: TWI, Insa-Lyon and the University College of Ghent – TO2C. Participating SMEs are: CTF2000 and Decca (BE), Panaz (UK), SNano (TR), EVA Commerce (BG).

To be followed ...

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FULLY RENEWABLE BIOCOMPOSITES AND TRANSLUCENT CONCRETE

Researchers at the Institut für Textiltechnik of RWTH Aachen University present two technologies recently developed at the institute.

By Marie-Isabel Popzyk, Yves-Simon Gloy and Thomas Gries

The Institut für Textiltechnik (ITA) is one of the largest institutes of RWTH Aachen University and one of the leading textile research institutes in Germany. Currently almost 100 researchers, including postdoctoral and doctoral candidates, do research in the field of textile machinery, new materials and recycling as well as in the field of fully renewable biobased composites. With two European partners, ITA developed a racecar seat consisting completely of flax and polylactic acid (PLA). Also, ITA developed translucent concrete, which during daytime has an optical characteristic comparable to a natural stone cladding. In addition, each concrete panel can be lit in a different color using LED panels.

The Institute

ITA belongs to the top 10 institutes of RWTH Aachen University, Aachen, Germany. Its core competencies are the development of textile machinery and components, manufacturing technologies and comprehensive process chains; as well as high-performance fiber materials and innovative textile-based products in the sectors of mobility, civil engineering and life science, energy, and health (See *Figure 1*). The essential technology fields of its research are material and energy efficiency, functional integration and integrated production technologies.

One unique feature of ITA is its consistency of manufacture. ITA is able to produce carbon-fiber-reinforced plastics and all other materials through all steps of manufacturing, starting with a precursor and finishing with a laminated textile fabric. Additionally, ITA is researching the recycling of carbon-fiber-reinforced plastics and other materials. All research services are offered and handled in cooperation

with 3T TextilTechnologieTransfer GmbH, a technology transfer spinoff of ITA.

The institute offers courses in mechanical engineering, specialized in textile engineering, and industrial engineering, specialized in textile engineering; and trains teachers in technical education for professional schools. Beyond that, the opportunity to earn a Dr.-Ing. degree exists. From fall 2014 on, an international Master's program in Textile Engineering is offered.

Biocomposites

In the field of biocomposites, ITA focuses on developing composites that are made completely of natural materials. There are several possible routes to produce fully biobased composites. Nature Wins is a recently successfully concluded project on which ITA and two other European project partners developed fully renewable thermoplastic biocomposites. The project focused on the development of biocomposites based on long/continuous industrial natural fibers as reinforcement and thermoplastic biopolymer fibers as matrix material. The scope was narrowed further by focusing on a production route based on blending both matrix and reinforcement in fiber form and using compression molding as the composite formation process.

The project goal was to produce a racecar seat consisting of a nonwoven made using a blend of flax and PLA fibers (See *Figure 2*). ITA selected the natural fibers and developed the textile processes as well as semi-finished parts, concluding with an ecological valuation and testing of the seat. In summary, this project shows that flax and PLA show excellent compatibility and adhesion, making



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these materials a very good combination for composites. Consolidation and impregnation of flax/PLA composites can therefore be achieved within an acceptable process window.

The environmental assessment showed that flax and PLA have strong potential to reduce global warming effects, but that some attention is still needed to address other environmental effects, mostly related to agricultural practices.

Grateful acknowledgement goes to the research association Forschungskuratorium Textil e. V., a branch of the German Federation of Industrial Research Associations (AiF), for the financial funding — through AiF-CORNET — of the research project AiF-No. 48 EN. The writers would also like to thank project partners Centexbel, Belgium, and Sirris Leuven-Gent Composites Application Lab, Belgium [1].

Translucent Concrete

ITA developed translucent concrete, now generally known as LUCEM Lichtbeton (LUCEM Light Transmitting Concrete), and produced by LUCEM GmbH, Stolberg, Germany. Translucent concrete is a novel structural material with a light-conducting feature (See Figure 3). This concrete contains 3-percent optical fibers, which are constituted of a core and a sheet with different refraction indexes. The principle of total reflection is used, and if a light ray impinges upon the interface of core and sheet, it is refracted or reflected depending on its angle of entry. To achieve total reflection, the refracting angle of the core has to be higher than that of the mantle. Thus, the core is made of denser optical material than the mantle. Possible optical fibers are organic man-made fibers like polymethyl methacrylate (PMMA), polycarbonate (PC) and polystyrene (PS), as well as inorganic fibers like silica glass and quartz glass. Glass fibers are preferred because of their durability despite the alkali environment in the concrete.

The fibers are processed further into textile fabrics in order to simplify and to accelerate the production process. If smaller batches are produced, loose fibers can also be used. For concreting, the optical fiber surfaces are positioned in layers, thereby making possible a variable gap in direction of the height between each layer. Also, a high matrix viscosity is required; otherwise, an uncontrolled floating or sinking of the fiber surface is possible. After setting, the fibers are positioned in the longitudinal direction of the concrete block. The concrete block is then sawn into thin layers with translucent features. To improve the guiding of light, each layer needs to be cut and polished. Panels with a thickness of only 1.5 centimeters (cm) are possible. Each panel can be accompanied with a LED panel. During daytime, the optical characteristic of these concrete panels is comparable to that of a natural stone cladding. As seen in Figure 3, during daytime, the silhouette of an object behind a panel can be seen through the panel. However, the panel looks like natural stone if nothing is directly behind it.

The first facade installed at the Institute für Textiltechnik of RWTH Aachen University has 136 panels in the size of 150 cm by 50 cm. The panels become brighter with the reduction of daylight, and each panel can be lit with a different color. Thus, an individual light scenario can be programmed and controlled via iPhone App (See Figure 4) [2, 3].

Conclusion

Innovative solutions in the field of textile machinery and technical textiles from basic research to application-related research are offered at ITA.

Editor's note: Dipl.-Ing. Marie-Isabel Popzyk is a research fellow, and Univ.-Prof. Prof. h. c. Dr.-Ing. Dipl.-Wirt. Ing Thomas Gries is head of research, at Institut für Textiltechnik (ITA) of RWTH Aachen University. Dr.-Ing. Yves-Simon Gloy is division head, Textile Machinery/Production Technologies at ITA; and adjunct professor, Department of Material Science and Engineering, College of Engineering and Science, Clemson University.

For more information about ITA, visit ita.rwth-aachen.de.

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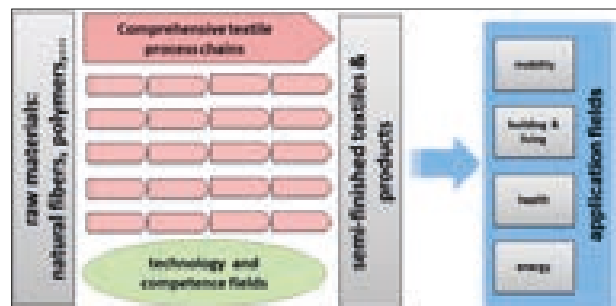


Figure 1: Textile process chain and application fields at Institut für Textiltechnik (ITA) of RWTH Aachen University

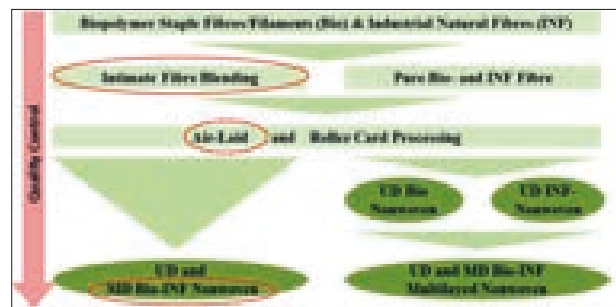


Figure 2: Production route for biocomposites made of flax and PLA fibers [1]
INF: Industrial Natural Fibers / UD: Unidirectional / MD: Multidirectional



Figure 3: Hand in front of and behind translucent concrete [3]



Figure 4: A translucent concrete has been installed at ITA, RWTH Aachen University, Germany

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CLARIANT'S EXOLIT® OP 560 CONFIRMED AS SAFER FLAME RETARDANT FOR PU FOAM

- United States Environmental Protection Agency concludes assessments of flame retardants
- Non-halogenated Exolit OP 560 identified as safer alternative to pentaBDE for PUR foams
- Supports upholstery sector in switch to renewable materials and enhanced environmental compatibility

Clariant, a world leader in specialty chemicals, confirms good news for the upholstery industry and other sectors looking for safer, environmentally more compatible flame retardants that meet internationally accepted flammability standards for flexible polyurethane foam. In its draft Alternatives Assessment report¹ on flame retardants in flexible foam released in June², the U.S. Environmental Protection Agency (EPA) identified Clariant's oligomeric phosphonate polyol (OPP) flame retardant – marketed under the trade name Exolit® OP 560 – as a safer alternative to pentabromo diphenylether (pentaBDE), traditionally used for giving fire protection to foam.

The report is part of the EPA's Design for the Environment program, which helps industries choose safer chemicals, and offers a basis for future decision-making by providing a detailed comparison of the potential public health and environmental impacts of chemical alternatives.

Exolit OP 560 is a reactive flame retardant that eliminates unwanted emissions since it becomes chemically bonded within the polymeric polyurethane foam structure. As a result, the Exolit OP 560 cannot leave the foam during use. Exolit OP is also halogen-free, and has a more favourable toxicological and environmental profile. In particular, it cannot bio-accumulate in humans and other organisms since it is "locked" into the foam. Further benefits for PU applications include excellent ageing stability, as well as low smoke density and smoke gas corrosivity in case of a fire. The phosphonate's high effectiveness and good compatibility with natural polymers allow it to be used at low dosages in the foam matrix, which also adds to the foam's excellent sustainability profile.

Natural Foams Technology (formerly Green Urethanes Ltd.), the provider of green solutions to the global PU industry, has confirmed that manufacturers can use Exolit OP 560 with its natural oil polyol (NOP) foams to develop low-emission-flexible foams that meet internationally accepted flammability standards³ such as TB117-1975, California's open flame flammability test for upholstered furniture, and the updated Cal TB 117-2013, which comes into force in January 2015. With high bio-renewable content, the foams have become the first to be accepted into the USDA's Bio-Preferred program, a U.S. federal program to encourage industry to switch to more sustainable materials.

NCFI Polyurethanes, a North Carolina-based manufacturer, has been utilizing the NOP technology in their BioLuxMax line for several years. After running extensive trials with Exolit OP 560, they plan to introduce a commercial product in the 4th quarter 2014. "This is a natural evolution for our BioLuxMax initiative," says Chris Bradley, VP of Consumer Products for NCFI. "This project has always been about maximizing the benefits

we can offer our customers. We feel a foam with 33 % certified bio-renewable content that passes the open flame standard of CA-117-1975 and can be labelled under the new California law as flame retardant free, is a huge step in that direction."

Additional testing by Clariant and Natural Foams reinforces the EPA's replacement assessment of the Exolit material. Results from these and other independent tests show good flame retardant performance as well as substantial smoke reduction from these foams. A recent study⁴ by dr. Heather Stapleton at Duke University's Nicholas School for the Environment in North Carolina also concluded that Exolit OP 560 is not released from the polyurethane foam.

Exolit OP 560 is not only halogen-free but becomes an integral part of the PU foam, creating possibilities to produce flexible foams with locked-in fire protection without the environmental and health concerns of traditional flame retardants. The US-EPA report is a step forward in easing the identification of safer alternatives by PU foam producers and end-users.

Clariant is looking to expand capacity to meet increasing demand in the move toward more environmentally friendly and sustainable PU foams.



Fig. 1: Clariant's Exolit® OP 560 confirmed as safer flame retardant for PU foam



Fig. 2: Exolit® OP 560 is not only halogen-free but becomes an integral part of the PU foam, creating possibilities to produce flexible foams with locked-in fire protection without the environmental and health concerns of traditional flame retardants

- 1 US-EPA foam flame retardant draft update report - <http://www.epa.gov/dfe/pubs/projects/flameret/about.htm>
- 2 US-EPA Press release - <http://yosemite.epa.gov/opa/admpress.nsf/0/F943A4C163A5B8A785257CF500698492>
- 3 Jeff Rowlands: Natural Foams Technology to produce safer and more environmentally acceptable flexible PU foams. PU MAGAZINE – VOL. 11, NO. 4 – Aug./Sep. 2014 -- <http://naturalfcfoams.com/wp-content/uploads/2014/09/Special-Report-Natural-Foams-Technology-PU-Magazine-August-2014.pdf>
- 4 E M Cooper, G L Kroeger, K Davis, P L Ferguson, H M Stapleton: Duke Superfund Center Foam Project: Flame Retardant Testing for the General Public. Poster presented at BFR 2014 conference, Indianapolis, IN, USA -- http://naturalfcfoams.com/wp-content/uploads/2014/09/BFR_2014_Final1.pdf

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ARCHROMA ENTICES WITH INSPIRING COLOURS AND ECOLOGY AND ECONOMY FOCUS

With the motto: *"We touch and colour people's lives, every day, everywhere"*, Archroma's value-adding textile dyes, chemicals and services promote the creation of exciting, quality textiles using environmentally-friendlier and more sustainable manufacturing processes and products.

Colour innovations for more sustainable end-products

- **ADVANCED DENIM** : with its award-winning **ADVANCED DENIM** concept, Archroma aims at developing new technologies for achieving exciting colour and material effects while reducing the impact of denim manufacturing on the environment. When employing Archroma's Advanced Denim technology, based on Archroma's breakthrough "Denim-Ox" and "Pad/Sizing-Ox" processes, water consumption can be reduced by up to 92%, up to 63% of the usual cotton waste can be avoided, and up to 30% can be saved in energy costs compared to traditional denim processes. Archroma recently estimated that the use of its Advanced Denim technology had allowed savings of approximately 700 million litres of water in 2012 alone. The figure is truly impressive: Advanced Denim was used only in an extremely small part of the worldwide production of jeans; imagine how much water could be saved if more manufacturers joined the Advanced Denim revolution! Archroma received the ICIS Innovation Award for its Advanced Denim concept in 2012.
- **Optisul® C** : these newly launched dyes enable manufacturers to expand their colour horizons with a new range of six dyes especially designed to produce soft colours in continuous dyeing processes. These affinity-free sulfide-free* dyes, suitable for GOTS** and bluesign®1 approval, can be combined with each other at low concentrations to obtain collections of jeans in a wide array of easily achievable and reproducible soft colours.
- **ONE WAY**: Archroma's ONE WAY Sustainability Service helps

textile mills, brands and retailers to develop innovative solutions that are both more ecologically and economically sustainable, by providing a fast, measurable and reliable approach to the selection of chemical products and process solutions. The effectiveness of its sustainability calculation system was confirmed in physical tests carried out by leading machine builder Fong's. In October 2013, Archroma received the prestigious ICIS "Best Business Innovation" Award for ONE WAY. With the Award, ICIS recognized Archroma's strong commitment to innovation with world-class quality standards, high service levels, cost-efficiency and sustainability.

- **DOUBLE BLACK** : designed to excite the fashion industry, Archroma's DOUBLE BLACK is a synergy of dyeing technologies that creates stunning, deep black shades under any lighting conditions, with great flexibility and excellent wash-fastness. Archroma's DOUBLE BLACK brings together in one process a sulphur black dyestuff, Diresul® Black RDT-2KS liq., and a reactive black dyestuff, Drimaren® Black CL-S, resulting in deep black shades and enhanced performance for cellulose fibres. Archroma's DOUBLE BLACK combines the high performance of sulphur blacks such as perspiration- and light-fastness, with the features of reactive blacks: shade flexibility, repetitive washing fastness, etc. All this is achieved without an increase in processing time because scouring and Diresul® black dyeing are carried out at the same time.

Low-temperature innovations for more sustainable production

Low-temperature processes allow tremendous savings in energy, water and other resources, but can be extremely complex. Archroma's experts offer a constant flow of innovations and solutions aimed at allowing customers to reap such benefits with its BLUE MAGIC all-in-one bleaching process or Drimaren® HF and Drimaren® CL dyes for cellulose.

- **BLUE MAGIC** : Archroma's all-in-one bleaching auxiliary is the key to the new BLUE MAGIC process. Based on Imerol® BLUE liq., it generates both economic and ecological advantages. Besides its advanced brightening effect, BLUE MAGIC provides higher productivity, simplified handling, better uniformity and improved dye-ability, with less impact on the environment.

Based on the "Singulet Bleaching Technology", Imerol® BLUE liq. is a wizard with a hat full of fantastic magic tools. One single product delivers an efficient, economic and short discontinuous pre-treatment. Whether customers need a ready-for-dyeing grade or the brighter optical white, the BLUE MAGIC process will deliver it, without a separate rinsing. This results not only in shorter time and reduced energy, but also in reduced water consumption. From yarn to cotton flocks, to terry towels, woven and knitwear, the BLUE MAGIC process can allow savings of up to 50% in water, 40% in energy and 50% in time.

- **Drimaren® HF and Drimaren® CL**: Archroma's Drimaren® HF and Drimaren® CL range of reactive dyes shows robust dyeing behaviour on modern, ultra-low liquor ratio, dyeing machinery combined with low temperature (60° C) washing off requirements guarantee resource savings and ensure environmental sustainability. The range provides a high degree of fixation, reproducibility and excellent washing-off and wet-fastness properties in both exhaust and continuous applications.

Remarks:

- * Below limits of detection
Optisul®, Diresul®, Drimaren® and Imerol® are registered trademarks of Archroma
bluesign® is a registered trademark of bluesign Technologies AG
- ** GOTS (or Global Organic Textile Standard) is a standard of International Working Group on Global Organic Textile Standard

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BIG IMPACT ZET MET ZIJN WERELDPRIMEUR DE GORDIJNENMARKT OP ZIJN KOP

- **Productiviteit:** snelste high-quality-textielpriester ter wereld
- **Vrijheid:** 330 cm printbreedte betekent ontwerpvrijheid in kleur, patroon en formaat
- **Kwaliteit:** kleurintensief, slijtvast/ wasbaar en lange levensduur in 1200 dpi

Big Impact, specialist in printwerk op (extreem) groot formaat, breidt zijn machinepark uit met de Durst Kappa 320. Daarmee zet het Eindhovense printbedrijf de markt voor interieurtextiel op zijn kop. De nieuwe machine levert door zijn formaat (330 cm printbreedte, lengte vrijwel onbeperkt) mogelijkheden die voorheen niet bestonden. Zo hoeven dessins niet langer te repeteren, wat een volledige ontwerpvrijheid geeft. Daarnaast realiseert de printer een constante, zeer hoge kwaliteit bij een extreem hoge productiviteit. De machine is sinds begin juli 2014 volledig operationeel.

Textiel on-demand

Big Impact staat te boek als een vernieuwer in de printproductie-industrie. Dankzij continue innovatie kan Big Impact de beste prijs-kwaliteitverhouding realiseren in de markt. Big Impact gaf Durst, de gerenommeerde fabrikant van industriële inkjetprinters, de opdracht tot ontwikkeling van de productietextielpriester. Het nieuwe arsenaal van Big Impact heeft grote voordelen voor de interieurtextielbranche die zoekt naar absolute ontwerpvrijheid, hoge kwaliteit en lange levensduur.

Gordijn- en meubelstof is nu te realiseren via printing-on-demand.

Dit maakt het mogelijk om custom-made dessin toe te passen en kan de voorraden van gordijnmerken en groothandel drastisch reduceren, dit alles met absolute designvrijheid.

Haarfijne kwaliteit van 7 pcl

De nieuwe productielijn van Big Impact realiseert een bijzonder hoge kwaliteit. De basis daarvoor zit in de innovatieve printerkoptechnologie die met een pixel van 7 pcl maar liefst 1200 dpi haalt. Daarnaast maakt de machine gebruik van een klevende transportband waardoor het oppervlak bewegingsvrij (en rek/krimp vrij) kan worden geprint. De uitgekende combinatie van speciale CMYK-inkten en diverse textielsoorten maakt de cirkel rond. De inkt dringen in de vezels met als resultaat: krachtige, heldere afbeeldingen met een haarfijne resolutie die bovendien slijtvast en wasbaar zijn.

Ontwerpvrijheid

Marc Schoenmakers, directeur Big Impact: "Wij streven er steeds naar de grootst mogelijke stap in kwaliteit en productiviteit te maken in combinatie met nieuwe mogelijkheden. Onze nieuwste installatie is meer dan zo'n stap."

De machine is spectaculair en geeft de interieurtextielmarkt een gehele nieuwe dimensie. Gordijnen kamerhoog, absolute designvrijheid én razendsnelle on-demand-productie. We kunnen tot wel 10.000 m2 textiel per dag printen."

Innovatie gaat door

Big Impact heeft de machine nu in vol bedrijf met een uitgekende set aan

inkten en te verwerken materialen. De komende maanden zal Big Impact de printer verder testen met meer varianten polyestertextiel en nonwovenmateriaal.

Oekotex-inkt op basis van water

Naast een snelle en kwalitatief hoogwaardige printer is de Durst Kappa Rhotex 330 ook een duurzame machine. Het systeem verwerkt de grondstoffen veel zuiniger en exact; waar traditionele textielpriesters 135 gram verf/m² gebruiken, volstaat deze printer met 12 gram inkt/m². Bovendien werkt het ook nog eens met Oekotex-inkten. Vergeleken met traditionele productiemethoden zoals rotatie- en vlakzeefdruk heeft deze productielijn, naast grote besparingen op kleurpasta's (99,5%), water (89,3%) en energie (81,5%), nog een voordeel: doordat er geen sjablonen meer nodig zijn, spaart dat zo'n tweeduizend kilo nikkel per druksysteem per jaar.

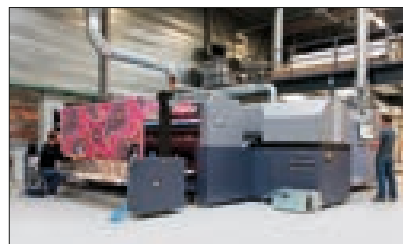


Fig. 1: de indrukwekkende Durst Kappa 320 van Big Impact

Voor meer informatie:

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BRÜCKNER'S INNOVATIVE AND ENERGY-EFFICIENT SYSTEM SOLUTIONS

The German company rich in tradition

The Brückner group of companies is since 65 years worldwide leading in the production of complete lines for the finishing of woven technical fabrics, carpets, nonwovens and classical textiles. Sustainability, innovative solutions, worldwide service and the closeness to our customers are our most important

factors of success. With our production site in Germany we are able to supply individual solutions and highest quality to our customers. In our technology centre we accompany our customers and interested companies when they are developing new products. Experienced technologists give useful information and details in personal counselling interviews.

Focusing on sustainability

The requirements to textile products changed very much in the last years. The desire to achieve a multi-functionality of the end products and variable machinery concepts is increasing continuously. In particular automotive, protection and safety textiles, geo nonwovens and hygienic or medical textiles must have very different characteristics.

They are for example flame-retardant, antimicrobial, hydrophobe, antistatic, dirt-repellent and much more. We - as system and machine manufacturers - have to face these customer-specific requirements. With many years of knowhow our engineers together with our customers develop new machinery concepts for the coating and finishing of technical textiles and nonwovens. These developments are mainly focused on energy-efficiency and the conservation of resources. For this purpose we offer individual energy saving systems for existing lines and integrated consultancy in view of a process optimization. Since 2011 we are involved successfully in the sustainability initiative of the VDMA: Blue Competence.

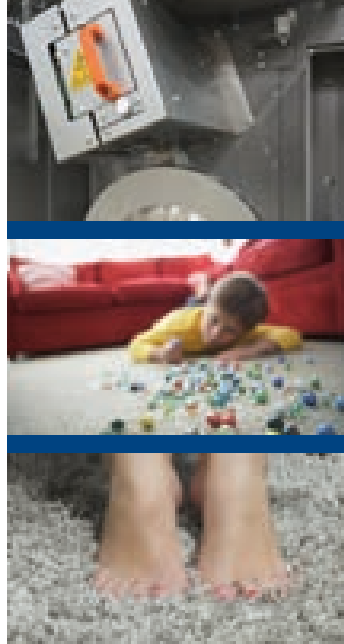
Technology according to the customers' desires

In order to support our customers better in the development of new products, we built last year a new technology centre where a test facility for coating and finishing of textiles, woven technical fabrics and nonwovens is installed. This gives us on the one hand the possibility to do optimum research and development work at our own products. And on the other hand we offer our customers and interested companies the possibility to make tests on this line to advance their own product development primarily in the field of coating and functionalising. We can offer with this line the following technologies, depending on the process and on the type of fabric : finishing, coating, impregnating, drying, crosslinking, heat-setting as well as laminating. Together with our customers and the chemical industry we develop individual line concepts and processes.

Product range "made in Germany"

Our range of products comprises beside the classical textile stenter all coating and impregnation lines for the single-side and double-side finishing of textiles, woven technical fabric, floorcoverings and nonwovens. And we supply all corresponding units, such as padders. Our recently developed padder offers beside a retractable trough absolutely low residual liquor quantities. For minimum application processes we offer for example our WAVE-COATER with integrated dosing roller. We recommend this process for the single-sided application of low-viscosity functional liquors.

For the finishing of technical textiles we supply very different coating and traction units and calender systems. But of course we supply also complete line concepts for direct or indirect coating. Depending on the process we adapt the dryer concept to the process technology and the customer's process parameters. In the preparation we identify the maximum load of the line and define the exact machinery parameters. In the field of functional coating of PVC, PU or acrylates we offer lines for the production of protection textiles for hygiene products, sportswear or filter products. For the sports and leisure area and for the automotive industry we design particular line concepts for example for the air bag industry, finishing of parachute silk, sailing cloth, artificial leather and



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many more. In addition we supply lines for the production of grinding disks, roofing underlay, construction reinforcements and more. Another group of products are the lines for finishing and consolidation of nonwovens. In this sector we have many years of experience in the construction of flat-bed dryers and heat-setting dryers, air-laid dryers, high-temperature and thermo-fusion ovens as well as drum dryers. There is a multitude of possibilities

for these lines which lead from filter media via automotive to geo textiles and voluminous high-loft applications.

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Fig. 1: a Brückner line with multiple technical possibilities

DILO-ISOMATION : EVEN WEB MASS FOR REDUCED FIBRE CONSUMPTION

Textile machine builders and producers have traditionally made great efforts to achieve an even fibre mass flow and thus a reduction of the fibre mass variations in textile products. The main target is to reduce fibre consumption based on the logical basic consideration that the medium fibre mass may be reduced and still meets quality requirements for the textile product. This principle applies for yarns as well as for textile sheets.

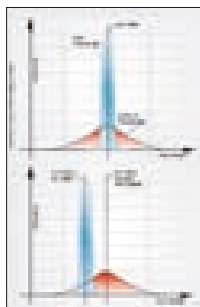


Fig. 1: reduction of the medium area weight at low variation without falling below minimum requirements

In case of web forming machines, creative solutions have been in demand for the last decades resulting for example in a better quality of card feeding, higher layering precision and improved web edge lay down to improve the web evenness. It is not until the delivery of coordinated production installations that the single solutions at the different components of fibre preparation, web forming and consolidation are considered more and more holistically and are integrated in a closed loop by the operation, drive and automation technology.

Using the example of a web forming and consolidation installation, we may discuss the different elements available for homogenizing the fibre

mass flow and for reducing fibre mass variations. Which basic textile technological considerations can be taken into account?



Fig. 2: MultiFeed - doubling of the fibre mass by "Twinflow" for a more homogeneous flock mass flow, additional pneumatic compression of the flock mass in the lower trunk

1. Draft minimizing

When transporting fibre mass, draft occurs in the fibre mass at the transfer points from one stage to the next because drive forces are necessary to overcome friction and adhesive forces. Speed variations in the transport means induced draft in the fibre mass, which creates the necessary transport forces. Unfortunately, these drafts often exceed the elastic range of the fibre mass and result in permanent elongations. Consequences are additional irregularities in the fibre mass distribution as thin areas are more elongated than thick areas.

This conclusion leads to efforts to either reduce drafts necessary for the fibre mass transport or, if possible, to eliminate them by using "positive transport". Positive web transport means to bring in transport forces at the points of motion resistance.

Examples for this are needling on a running brush apron and elliptic needle movement.

If drafting and the resulting elongation is used to change the quality as for example fibre reorientation, drafts have to be controlled by minimizing the drafting zone lengths.

2. Compression

Every kind of planar compaction or compression results conversely to the impact of the draft and to an increased homogeneity of the fibre mass as thin or hollow areas are filled in at least partially.

3. Doubling

Also at doubling, the principles for increasing the homogeneity for yarn and textile structures are the same and are based on the conclusions of Martindale. Based on the mathematic interrelation that individual values of the mass distribution of various layers of fibre mass do not add up linearly but only geometrically via the radical of the sum of the square numbers of the standard variations, homogenization is achieved by matching one or more fibre mass layers on each other.

$$s_{ges} = \sqrt{\sum_{i=1}^n s_i^2}$$

s_{ges} = standard deviation of the fibre mass variation of the web

n = number of layers

s_i = standard deviation of the fibre mass variation of the individual web layer

This becomes evident when considering the variation coefficient of the complete web compared to the CV value of the single layer.

$$CV_{ges} = \frac{CV_i}{\sqrt{n}}$$

CV_{ges} = variation coefficient of the web

CV_i = variation coefficient of the web layer

A classic example for this method is the cross-lapper which does not only fulfil its basic task by building up a web width and a web mass but at the same time helps homogenizing the web efficiently.

Many actions aimed at reducing fibre mass variations can be traced back to these three basic principles of reducing drafts, planar compression and the use of the doubling effect.

Prerequisite for homogenizing the fibre mass flow is of course the fibre preparation for staple fibre. Opening and blending systems that meet the high requirements for an optimum flock size and homogeneous blending incorporate modern electronic drive technology that allows an efficient speed synchronization of the different line components. Following these common considerations, a short list of the special components within an installation for the production of nonwovens, which help reduce fibre mass variations, is shown below:

1. controlled dosing of the flocks,
2. card feeding with flock doubling, flock compression and belt weighing,
3. web compression,
4. control of longitudinal web profile to pre-compensate thick edges in the batt cross-profile (CV1-system),

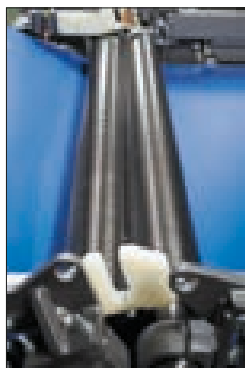


Fig. 3: CV1-System : pre-compensation of thick edges to get an even cross-profile

5. precise cross-lapper kinematics at reduced dimensional variations of the web,
6. web drafter with controlled draft for fibre mass reduction,
7. batt feeding system for needling with compression,

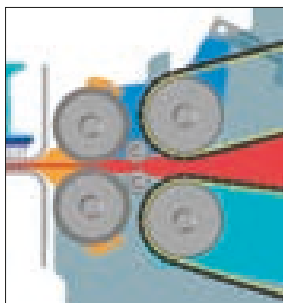


Fig. 4: CBF-System : homogeneous batt feeding to the needle loom at minimum draft

8. positive web transport within the needling zone (brush apron, Hyperpunch),
9. controlled felt drafting for fibre reorientation,
10. closed loop control system for fibre mass flow by using an area weight measuring unit.

Thus, Dilo has all specific, technical and technological solutions to achieve a more homogeneous fibre mass flow within the complete production line. Drafts are either eliminated, reduced or controlled. Compression of the flock mass or within the web structure supports homogenization. Also, the classical means of doubling results in very good homogenizing effects when applied in the card feeder. The variety of solutions of special web forming and consolidation components aimed at reducing fibre mass variations are considered under the term "DILO-Isomation" and are further developed.

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DYSTAR'S NEW BLUE SHADES FOR DENIM

The DyStar denim team has developed new blues based on DyStar's patented Indigo vat 40% solution. The denim team has a strong focus on environmentally friendly solutions and on providing the best service to their customer. But they also strive to inspire the denim industry with new shades and effects. Celebrating a "Festival of Blue" the company launches four new shades for fashionable denim.

- *Sky Blue* is a bright blue that has a clear look after the wash-down process is applied,
- *Ever Blue* is a ring dyeing and keeps jeans after washing and fading forever blue,
- *Full Blue* is a core dyeing to make jeans appear bluish after wash down,
- *Deep Blue* is a very special

process to provide an extremely dark shade and more resistance to fading.

With these new developments, the DyStar denim team continues the way to offer the best and most innovative solutions to our indigo solution customers. It doesn't only want to provide the best product, it also wants to be an inspiration for denim fashion by launching these fresh new blues.

DyStar indigo has a history of almost 120 years of technical development and inspiration. The core product is the state-of-the art DyStar indigo vat 40% solution which allows a cleaner indigo dyeing process and a reduction of the sodium hydrosulfite usage by 60-70%. Being a solution provider, DyStar offers not only a high-quality dye. The DyStar denim

solution also includes auxiliaries to provide beautiful, fashionable wash effects, Lava® dyes for colourful denim and a service team that supports its customers in all important denim markets.



Fig. 1: "Festival of Blue"

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EFI BRINGS FIERY VALUE TO NEW XEROX COLOR C60/C70 PRINTER

EFI™ announced on September 23th that EFI Fiery® digital front ends (DFE) are available for the new Xerox Color C60/C70 Printer. EFI and Xerox have collaborated to deliver the customised Xerox EX-i C60/C70 Print Server powered by Fiery and the Xerox EX C60/C70 Print Server powered by Fiery to drive these light production digital presses.

The new Fiery servers allow in-plant and light production printers to meet the most demanding standards for image quality and colour accuracy. The built-in Fiery job automation capabilities, plus the seamless integration to EFI MIS and Web-to-Print products, offer a unique opportunity for businesses to improve their productivity and profitability.

The new Fiery DFEs incorporate the proven image processing technologies that made EFI Fiery the only DFE to earn a 100% perfect pass label from the VIGC PDF RIP audit. They also build on that foundation of image-processing quality with the Fiery FS150/FS150 Pro platform's remarkable speed, power and accuracy for value-driven, high-quality graphic arts environments.

The new Xerox EX-i C60/C70 Print Server offers world-class Fiery

workflow features, giving users exceptional colour quality at a more-affordable cost. More demanding production printing environments can use the Xerox EX C60/C70 Print Server, which delivers 83% more processing power.

The new Fiery servers utilise our latest platform, FS150 Pro, giving Xerox customers the ability to offer unsurpassed image quality and establish easier to use, automated workflows.

Industry-leading functionality

More than a DFE, Fiery is known for its many industry-leading capabilities, which are available in the Xerox-branded servers powered by Fiery for the Xerox Color C60/C70 Printer. These include:

- certification to industry standards with IDEAlliance Digital Print Certification and FOGRA Certification, ensuring users meet or exceed established industry specifications for excellence in colorimetric accuracy, uniformity, repeatability, durability and registration;
- integration with enterprise systems such as Xerox Standard Accounting and Xerox Extensible Interface Program for third-party-developed applications;

- increased productivity across all Fiery-enabled printing devices using the latest version of Command WorkStation®, the powerful, intuitive job management interface that lets users manage all Fiery Driven™ printers locally or remotely from a single user interface;
- simplified layout and make-ready with Fiery Impose for intuitive, visual document imposition and automated handling of common layouts, with preparation functions in one easy-to-use interface.

More demanding production printing environments will benefit from the 83% higher processing power of the Xerox EX C60/C70 Print Server. In addition, it offers:

- streamlined end-to-end workflows, using seamless integration with EFI MIS/ERP and eCommerce and web-to-print software to move job information through production systems faster and more efficiently. In addition, the Xerox EX C60/C70 Print Server integrates with solutions such as Xerox FreeFlow® Digital Workflow Collection and Xerox FreeFlow Core as well as other popular prepress workflows including KODAK PRINERGY, Agfa Apogee and Heidelberg Prinect;
- best-in-class colour and imaging,

including, automated image enhancement and optional software such as the Fiery Graphic Arts Package, Premium Edition, and Fiery Color Profiler Suite.

The Xerox EX-i and EX C60/C70 Print Servers also offer a number of benefits for office users, including a number of free features: mobile,

Wi-Fi and cloud printing; Fiery VUE, a 3D visual print application that guides users through an interactive workflow to create professional materials; and Fiery FreeForm™ for in-house production of personalised communications.

The new servers are available to order now from Xerox and authorised

Xerox resellers. For more information about Fiery Driven digital print technologies, visit www.efi.com

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THE HERBOLD PLASTCOMPACTOR

A simple and cost-efficient system to produce an agglomerate with high-bulk density, ideal for storing, dosing and conveying. Ideal for difficult flowing materials like textile fibres.



Fig. 1: plant structure

The Herbold Plastcompactor is a cost-efficient recycling system due to its process simplicity and its automated operation that needs minimum operator supervision.

The gentle agglomeration of thermoplastic materials by the Herbold Plastcompactor process ensures a high-quality product.

The Herbold Plastcompactor is available in different models for capacities depending on the material up to 1500 kg/h and more.

Materials that are densified with the Herbold Plastcompactor:

- film waste from production lines,
- fibres and foams,
- carpet waste with backings and fibres,
- powder or dust and fines from size reduction processes,
- mixed thermoplastic waste,
- shavings,
- mixed plastic waste,
- and many more.

Textile agglomerates with its high-bulk density and good flow characteristics can be used as fillers without force feeding in extrusion parts or injection moulding products among others.

For more information see website: www.herbold.com. Herbold is a leading manufacturer of size reduction and pulverising equipment as well as washing lines e.g. for PET bottles, HDPE materials, post-consumer film and agri-film.

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Fig. 2: sample of an input material : pre-shredded textiles and films



Fig. 3: the end-product: agglomerates

MONFORTS' NEW MODULAR, INTERCHANGEABLE COATING SYSTEM

A modular approach for an industry of extremes: the new Monforts Montex Allround for technical textiles

Technical textiles are extremely diverse in their end-use applications and manufacturers can be called upon to quickly produce a succession of materials with widely differing properties, often within a single shift.

These can range from carbon fabrics for today's high-performance composites, to filter media which must perform in extreme temperatures. Then there are the heavy-duty membranes which are

employed in the collection and storage of methane in biogas plants, as well as materials equipped with sensors and electrical conductors which are now used as base liners in DSC solar cells.

These very different materials, however, have one thing in common: they all require expert finishing for maximum efficiency.

In seeking to cater to the flexibility in processing technology demanded by such wide-ranging production, Monforts has developed the new Montex Allround, a modular, interchangeable coating system for technical textiles. The patented

Montex Allround offers considerable benefits to manufacturers of coated technical textiles, and not least in respect of its flexibility.

The modular coating heads of the system can be quickly and easily changed by a specially-designed undercarriage from the side of the unit, allowing it to be adapted for different applications.

There are modules for knife and slot die coating, in addition to those suitable for flexure, gravure and rotatory-screen printing. Special modules for powder scattering and spraying are also available. The unit can be enclosed with a special

casing when the handling of fabrics treated with organic, or even toxic solvents is taking place.

The Montex Allround, which consists of a spreading unit and a pulling device along with the selected coating head, allows for the tension-free coating of the substrate along a greatly-reduced web path and a very short period of 'open' coating prior to it entering the dryer; ensuring significantly less chance of contamination.

The shortest possible distance between the coating head and the stenter infeed ensures the highest quality coating results.

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Fig. 1: the Montex Allround from Monforts

OERLIKON NEUMAG'S TECHNOLOGIES FOR AN EFFICIENT TECHNICAL NONWOVEN PRODUCTION

A comprehensive portfolio of nonwoven and staple fibre technologies, from meltspun spunbond (spunbond and meltblown) to air-laid nonwovens (air-laid) and the new compact staple fibre line Staple FORCE S 1000 has been presented by Oerlikon Neumag at this year's CINTO TECHTEXTIL CHINA 2014 trade fair in Shanghai. Application areas of the presented technologies are for example special technical uses such as filtration, roofing, geotextiles and automotive, as well as hygiene applications.

The new Staple FORCE S 1000 with its compact construction and low throughputs of up to 15 tons per day, enables swift product colour changes with considerably lower waste. The savings in terms of energy and water resulting from the deployment of a dry-drawing process, lead to a reduction in operating costs and simultaneously protect the environment. The option to install the system on a standard industrial floor also minimizes investment costs. "Efficient, flexible and compact" are extremely attractive factors for our customers, opening up diverse, new market potentials for them. The Staple FORCE S 1000 is not just for fibre manufacturers focusing on special applications and on 'on-demand' deliveries, it also enables nonwoven producers to efficiently integrate fibre manufacturing into their own production operations.

Technical spunbond technology for a rapidly growing market

Oerlikon Neumag offers the complete process from polymer chips up to roll goods for the production of substrate for bitumen roofing membranes, sarking membranes and also geotextiles. The one-step spunbond technology convinces with a combination of effectiveness and productivity, thus lowering production costs by up to 20 %. More than three million tons of technical nonwovens were produced last year and the demand is still increasing, especially in emerging countries. Thinner, lighter, efficient materials, as produced with the spunbond technology, now specify the trend.

Meltblown technology stand-alone or as an upgrade solution

The Oerlikon Neumag meltblown technology enables the cost-efficient production of high-quality meltblown and SMS (spunbond-meltblown-spunbond) products. Stand-alone mono and bico meltblown plants produce nonwovens for a variety of filtration, insulation and sorbent applications. The meltblown technology is applied for a multitude of medical and hygiene products as "Plug & Product" installations in already existing and in new external SXS plants. This solution enables a cost-efficient upgrading of new or existing spunbond plants and offers nonwoven producers access

to markets with very high quality demands.

Air-laid: more homogeneity with thin nonwovens

The core of the Oerlikon Neumag air-laid technology, the forming head, sets standards for the production of extremely thin air-laid nonwovens. A high uniformity and homogeneous web formation, today enable the production of high-quality, light air-laid nonwovens with economically attractive production speeds and plant throughputs. With the new forming head, we can not only produce very light air-laid materials, but also combination nonwovens with full utilization of the plant capacity, at the same time saving raw material.



Fig.1: Oerlikon Neumag – Roofing

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Zoek geen moeilijkheden, ze vinden jou wel

(Winston Groom)

UNLEASHED PRODUCTIVITY WITH AUTOCORO 8 FROM SCHLAFHORST CHANGES THE MARKET

While the economic efficiency of conventional belt-driven rotor spinning machines has been pushed to the limit over the years, the Autocoro 8 from Schlafhorst has been surprising the industry with double-digit productivity increases for the last three years. The Autocoro 8 thus has the potential to radically alter the competitive situation in rotor spinning.

Schlafhorst's Autocoro machine has dominated the market for rotor spinning machines for 35 years. However, the success of the Autocoro 8 outstrips that of its predecessors. Although the latest machine generation has only been on the market for three years, Autocoro 8 spinning positions now account for 30% of all spinning positions delivered by Schlafhorst in the last ten years. Our customers have recognised that the Autocoro 8 has shaken up the rotor spinning market. Double-digit cost reductions are being achieved in many areas with the Autocoro. These are on a scale that hasn't been witnessed

in the industry for decades. The Autocoro 8 is a real game-changer.

35 years ago, Schlafhorst's Autocoro machine revolutionised rotor spinning thanks to the complete automation of the spinning and winding process. In particular, spinning mills that produced large quantities of so-called commodity yarns took advantage of the substantially lower total cost of ownership (TCO) of the Autocoro to increase their efficiency.

Now the single-spinning position technology marks a paradigm shift that will change the industry, for it is this innovative technology that enables the big standard yarn spinning mills above all to cut their production costs per kilogram of yarn considerably. The huge boost in productivity that the Autocoro 8 facilitates with its high rotor speeds is especially striking.

18% more weaving yarn at 160'000 rpm

The Moldavian textile company Tirotext, based in Tiraspol, spins

its weaving yarns on Autocoro 8 machines at a rotor speed of 160'000 rpm. This has smashed the barrier of 150'000 rpm, which was regarded as insurmountable in practice for over twenty years. Tirotext has thus achieved a productivity increase of 18% compared with the previous Autocoro 480 machine. The yarn strength and elongation are above the minimum requirements of the company's own weaving mill and below the 25% characteristic curve of Uster Statistics.

High-speed yarn of premium quality is the strategy which Tirotext aims with to expand further on the global market in the future. With the Autocoro 8 it is a realistic goal, because this machine is designed technically for even higher speeds than 160'000 rpm. Tirotext is developing its competitiveness in a targeted manner. The vertically integrated company is already one of the major players in Europe, with an annual production capacity of over 200 million square metres of finished materials and woven fabrics.



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40% more knitting yarn with take-up speeds of 240 m/min

Elif is one of the leading textile companies in the Turkish textile stronghold of Kahramanmaraş, producing 13'000 tonnes of viscose yarn each year. Top quality without compromise is the recipe for the success of the Belcoro-certified company, which produces primarily knitting yarns in counts of 33-36 tex. In the last four years the company has boosted its sales from 12 to 60 million US dollars. With take-up speeds of 240 m/min, Elif has increased its productivity per spinning position by 40% with the same high quality and using 30% less energy.

This is a staggering result, yet Elif still hasn't fully exploited the potential of the Autocoro 8; thanks to its single-drive technology, take-up speeds of 300 m/min and higher are easily possible on any length of machine. Further productivity increases are thus pre-programmed for the company, which aspires to the market leadership in viscose yarns on the Turkish market.

Fruit of the Loom: 50% more yarn

Fruit of the Loom is also reporting spectacular productivity increases. In its fully integrated factory not far from the Moroccan capital Rabat, the company processes raw cotton from the USA to produce ready-cut fabrics that are then sewn into T-shirts and sweatshirts for the European market in the nearby sewing plants. 64 Autocoro rotor spinning machines work round the clock in the spinning mill. 18 of these are Autocoro 8 machines. The new Autocoro 8 rotor spinning machines produce 50% more yarn with 20% less energy consumption. Up to 50% more yarn is a quantum leap, especially for the manufacturers of standard yarns, who have been battling for years to squeeze out every extra ounce of productivity.

Lower energy costs

What is particularly fascinating is the fact that these staggering productivity increases have been accomplished with falling energy consumption: 20% lower at Fruit of the Loom and 30% lower at Elif. These are entirely new basic conditions to which the industry will adapt in years to come. With conventional belt drives, higher rotor speeds came at the

cost of exponentially rising power consumption. The Autocoro 8 with its revolutionary single-drive technology is different. It uses at least 20% less energy for the same rotor speed. The higher the speed, the greater the saving.

Lean maintenance equals lower personnel costs

Many spinning mills take advantage of single-drive technology to switch to lean maintenance. The machines no longer have to be shut down for regular cleaning and servicing jobs. While an entire cleaning brigade leaps into action following the shutdown on conventional machines so that the machines can quickly be started up again, one employee can service the spinning positions section by section on the Autocoro 8 while production otherwise remains ongoing. Peaks in staffing requirements no longer occur, saving several thousand euros per year and per machine.

10% more machinery per square metre

For investors building new spinning mills or modifying existing ones, the compact design of the Autocoro 8 yields a quicker return on investment. The footprint of the Autocoro 8 is approx. 10-13% smaller compared with rival machines. Thus either the volume of investment can be reduced or the effect of investment increased.

10% greater net from gross

Logistical costs in the textile industry are a significant cost factor that has significant effects on competitiveness and profitability as well as influencing decisions regarding location. DigiWinding optimises the package design so that every package can take up 10% more yarn without any change in package diameter or any loss of quality. Ten percent more net from gross has a direct impact on logistical costs: 10% less packaging expenditure, 10% lower shipping costs, 10% fewer logistics personnel.

Efficiency ratings of over 97%

For the first time the Autocoro 8 offers the possibility of such intelligent handling of raw material and spinning component changes, even on single-lot machines, that machine downtimes are avoided almost completely. In practical terms, this yields two to three

percent higher efficiency ratings. With single spinning position technology, a smooth change of raw material is now even possible on single-lot machines with reliable lot separation without all spinning positions having to run out first for quality assurance purposes. Every spinning position can be attended to individually in the event of a change of raw material, a lot change or a change of spinning components while the remaining spinning positions carry on operating uninterrupted.

Efficiency redefined

The technical innovations on the Autocoro 8 fundamentally change the cost structure of the manufacturing process. Hefty increases in productivity on the one hand and massive cost savings in virtually all areas on the other give the manufacturers of standard yarns in particular new room for manoeuvre. Efficiency is redefined. Companies that exploit this additional scope skill-fully can cut their costs, augment their productivity and thereby operate with much greater flexibility on the whole and add new market share. Major changes lie ahead of us. The future of rotor spinning has only just begun.

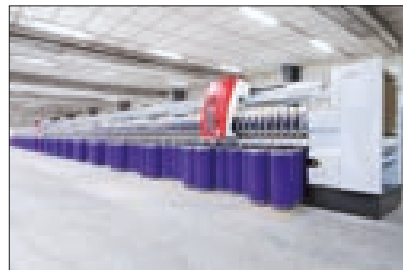


Fig. 1: Autocoro 8: productivity unleashed



Fig. 2: Tirotex spins 18% more yarn at 160'000 rpm

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PRECIFX ET SPEEDSTER FX DE SCHLAFHORST SONT EN TRÈS GRANDE FORME

Le marché du Denim croît et est âprement disputé. Pour rester avec succès et à long terme en tête de cette étroite concurrence, un parc de machines rentables au plus haut niveau et configurées de façon optimale est indispensable. Pour le processus de bobinage, du plus grand impact sur le plan technique et simultanément le plus rentable dans la fabrication du Denim, l'Autoconer est l'incontestable favori. Dans le cadre d'une étude comparative de très grande envergure, le Schlafhorst Technology Center a dégagé les potentiels maximum de productivité du PreciFX et Speedster FX et a ainsi apporté la preuve réjouissante de leur position dominante. Plus d'une tonne de fils Denim a été traitée dans des conditions réelles. Les résultats obtenus ont dépassé toutes les attentes. Comparée aux machines de la concurrence avec bobinage sur tambour, la vitesse de bobinage a pu être augmentée de 25% et le poids de bobine de 17%.

Concurrence féroce sur le marché du Denim en croissance

Voici deux ans déjà, la production de tissu Denim pulvérisait la barre magique de 7 milliards de yards par an. Le chiffre d'affaires annuel réalisé avec les jeans Denim dans le monde entier est estimé à plus de 66 milliards de dollars US. Que ce soit à titre d'application standard ou premium, comme qualité de coton "classique" ou grâce au confort agréable au porter, de plus en plus comme mélange de coton avec âme en élasthanne : les articles Denim jouissent toujours d'une demande croissante. Depuis des années, Schlafhorst est le fournisseur préféré de nombreux fabricants, petits et gros, de fils Denim dans le monde entier. Pour les clients de Schlafhorst, l'augmentation de la compétitivité par une hausse de productivité, l'optimisation des déroulements de processus et la réduction des temps d'arrêt dans le traitement ultérieur sont les facteurs les plus importants pour agir avec succès sur le marché de masse exigeant.

Une tonne de fil bobiné

En vue de cette étude pratique, les technologues en textiles de

Schlafhorst disposaient de plus d'une tonne de fil Denim sur cops. Il s'agissait d'un fil de tissage pour chaîne et trame, fil simple 100% coton d'une finesse de 85 tex (ou Ne 7). La tâche consistait d'une part à exploiter les potentiels de productivité de l'Autoconer X5 en combinaison avec le PreciFX et le Speedster FX sans réduire la qualité de fil. D'autre part, dans une étape suivante, un design de bobine a été conçu avec priorité sur un maximum d'efficacité qui garantit un meilleur comportement au dévidage dans le traitement ultérieur sur le cantre d'ourdissage et dans l'atelier de tissage.

Les valeurs d'une machine de la concurrence à bobinage conventionnel sur tambour, et sur laquelle une meilleure optimisation possible avait déjà épuisé la performance dans une entreprise client, ont servi de référence.

Vitesse de bobinage : 300 m/min de plus

Grâce à une configuration optimale prévoyant une force de traction de fil réduite et un pas de rainure adapté de façon variable, les experts de Schlafhorst ont atteint une vitesse de bobinage de 1500 m/min. Cela représente 300 m/min ou 25% de plus que sur la machine à bobinage sur tambour du concurrent. Avec 1200 m/min pour ce fil, celle-ci fonctionnait déjà à la limite de ses possibilités technologiques. Outre une vitesse de bobinage plus élevée, les technologues de Schlafhorst ont également recensé moins de casses de fil. Car le Speedster FX réduit la tension de fil en particulier dans le dernier tiers critique des cops, ce qui diminue considérablement le nombre des casses par tension. Moins d'arrêts de machine et des vitesses de bobinage plus élevées entraînent un bond énorme de productivité dans l'atelier de bobinage.

Machine	Machine de la concurrence	Autoconer X5 PreciFX + Speedster FX
Vitesse de bobinage [m/min]	1 200	1 500
Tension du fil [cN]	74	50
Angle de croisure [°]	30	variable, linéaire
Format de bobine	cylindrique	cylindrique
Poids de bobine [g]	3 950	4 600
Diamètre de bobine [mm]	320	320

Meilleure qualité de fil comparée à la machine de la concurrence

Malgré la vitesse de bobinage nettement plus élevée, la qualité du fil bobiné sur l'Autoconer X5 était meilleure que celle des fils traités sur la machine de la concurrence. La force de traction de fil réduite de 30% ainsi que le détachement en douceur du fil sur le cops par le Speedster FX sont ici les aspects prédominants. Outre les valeurs IPI réduites, la pilosité après le bobinage sur l'Autoconer X5 s'avérait également plus faible que sur la machine conventionnelle à tambour.

17% de fil en plus sur chaque bobine

Un autre résultat de l'étude marathon attire l'attention à deux égards. La technique unique de pose numérique de PreciFX, combinée avec le Speedster FX, est parvenue à augmenter le poids de bobine de 17% tout en maintenant le même diamètre. Un poids plus élevé pour un même volume signifie 17% de fil en plus dans le conteneur de transport ! Soit un avantage significatif au vu des coûts de logistique toujours plus élevés. La diminution des frais de transport et d'entreposage qui en découle accroît directement la compétitivité. Le deuxième avantage significatif de ce contenu de bobine plus élevé réside dans le temps de passage nettement plus long des bobines croisées. Il en résulte des atouts attrayants pour le traitement ultérieur : moins de frais de personnel grâce à une moindre manipulation de bobine et une rentabilité accrue grâce à la réduction des arrêts liés au changement de bobines.

La meilleure bobine fait la course

Qualité de fil et coûts ne sont cependant pas les seuls critères prépondérants sur le marché âprement disputé des fils Denim. Dans le traitement ultérieur, ce qui compte surtout c'est le comportement au dévidage de la bobine et de sa vitesse de livraison possible. PreciFX peut ici exploiter entièrement ses capacités. Par exemple, avec un bord de bobine rond du côté flanc dans le sens

de livraison, on peut atteindre une vitesse de livraison plus élevée que ne permet pas la bobine à tambour. Le pas de rainure variable et donc l'angle de croisure variable sur toute la constitution de la bobine réduisent de surcroît le taux de casse de fil dans la plage de diamètre normalement critique jusque 130 mm. Il s'agit là d'avantages uniques pour les clients de Schlafhorst.

Preuve impressionnante de la supériorité technologique

Les efforts inhabituels consentis pour mener cette étude de la technologie et de la productivité ont valu la peine. L'équipe d'experts de Schlafhorst a pu démontrer de manière impressionnante la supériorité technologique de PreciFX et de Speedster FX et donc l'extraordinaire prédominance de l'Autoconer. La combinaison optimale de ces deux groupes dégage d'énormes potentiels de qualité et de productivité.

PreciFX et Speedster FX enflamment le turbo de la productivité dans le bobinage et garantissent indubitablement la qualité de fil et de bobine souhaitée. Plus de mètres par minute, plus de fil par bobine et une excellente qualité de fil ; les filatures acquièrent ainsi des avantages déterminants par rapport à la concurrence. En outre, PreciFX s'emploie à ce que chaque bobine croisée fournisse dans le traitement

ultérieur un produit de marque prisé aux excellentes propriétés.

Les résultats se transmettent à d'autres qualité de fil. Dans le domaine du Denim, citons en particulier les fils à âme élastiques en coton et élasthanne dont les agréables caractéristiques au porter sont particulièrement appréciées. Pour des fils de la qualité 75 tex (ou Ne 8) (CO/EL), les technologues de Schlafhorst ont obtenu des taux d'augmentation comparables pour la vitesse de bobinage ainsi que des formats de bobine de très grande qualité. Mais dans d'autres applications aussi, le PreciFX et le Speedster FX procurent aux filatures de continu à anneaux de séduisants avantages concurrentiels pour toutes les finesses de fil. L'équipe Schlafhorst Technology est prête à tout moment à en faire la preuve.



Fig. 1: Speedster FX accroît la productivité et assure la qualité de fil

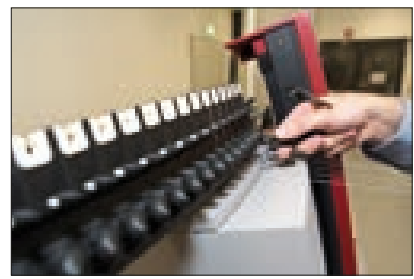


Fig. 2: Des tests complexes effectués en laboratoire ont prouvé la qualité exceptionnelle de fil



Fig. 3: PreciFX est synonyme de qualité supérieure de bobine, réglable de façon individuelle



Fig. 4: Nouveau design - grand format : la bobine PreciFX séduit par une rentabilité supérieure

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SSM ANNOUNCE THEIR BRAND-NEW MACHINE FOR TECHNICAL YARNS

The unique characteristics of tailor-made high-performance yarns is helping such yarns to substitute other classical materials in large range of applications; thereby continually increasing the usage of technical textiles and consequently their consumption. Despite this overall positive scenario production lot sizes can vary greatly; from large ones for standard yarns to small ones for specialties, managing such variances poses a challenge for any producer. The SSM **DURO-TW** precision winder for all technical yarns up to 50'000 dtex offers a new level of flexibility and winding quality in one machine; thereby ensuring the fulfilment of all customer requirements.

The assembly winder **DURO-TD** allows the plying of multiple ends/yarns; independent of them being of the same type or completely different. Optional intermingling guarantees loop-free twists as well as optimal unwinding during twisting. The ability to run closed precision winding enables higher package densities, thereby increasing the knot-free length.

Thanks to the commitment to technological innovation, focused on cooperation with best partners in the field and with industry leaders, nowadays SSM is recognized as innovative leader in Yarn Processing and Winding – Swiss developer, leader and inventor of the electronic yarn traverse system.



Fig. 1: the SSM DURO-TW 300 dpi

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THE YARN TELLS THE STORY : READING FABRIC APPEARANCE WITH USTER TESTING SYSTEMS

Testing with USTER® TESTER 5 and USTER® CLASSIMAT 5 shows how a fabric will look and feel...

Total customer satisfaction is every spinner's goal and reputations depend on it. Every critical yarn parameter must be tested to ensure that the resultant fabric meets expectations, whatever level of the market is being supplied. All the evidence confirms it, from the world's most successful yarn producers, and from detailed practical analysis.

There are two main types of yarn user: those committed to weaving or knitting high-quality fabrics, and those which serve 'commodity' applications. Both groups have their own specific requirements, and it's essential that spinners understand these needs and how to meet them. What is clear, though, is that yarn testing is fundamental to customer satisfaction, in every case.

Major customers, demanding requirements

The PALLAVAA Group is a successful spinning company in India, specializing in viscose, micro-modal, modal, polyester, bamboo, supima and its blends, and pure cotton. Established in 1995, the group has built a market-leading position, today supplying big-name brands. They are proud to be a supplier of NEXT, Marks & Spencer, H & M, Victoria's Secret and others. Of course, PALLAVAA is not alone in its desire to work with major retailers. And the group is quick to acknowledge that its ambitions in this direction depend on efficient quality control which meets the requirements of demanding yarn buyers.

In fact, long-standing customer relationships, based on high standards, call for a whole range of yarn quality parameters to be controlled: evenness, imperfections (neps, thin and thick places), hairiness, remaining defects and foreign fibres. Measurements from the USTER® TESTER 5 provide reports and analysis on evenness, imperfections and hairiness, while remaining defects and foreign fibres are covered by the USTER® CLASSIMAT 5. Quality-conscious spinners have trusted in these two instruments for decades

for reliable and accurate data. These laboratory testing instruments' data can tell the yarn quality story, and even predict how the final fabric will look.

Every quality parameter matters

It's also true that some spinners, mainly serving the lower end of the market might believe that evenness (Cvm) testing could be sufficient for their needs. But that view is mistaken: Cvm is indeed a relevant yarn quality parameter, but to predict the final fabric of a yarn it is essential to test other parameters too.

Comprehensive testing at the Uster Technologies laboratory in Switzerland has shown that yarns with comparable Cvm values can produce fabrics with obvious differences in appearance. In the tests, 25 tex cotton yarns from ten different suppliers had insignificant differences in their Cvm values, which could lead wrongly to the conclusion that the fabrics would look the same. Further test data from the USTER® TESTER 5 showed results for neps which were close in eight of the ten cases, in which the yarns had a nep value below the 25 USTER® STATISTICS Percentile (USP™). But one of the yarns had a much higher nep value, even exceeding 50% of the USTER® STATISTICS value.

Uster's developers know from experience that fabric knitted from yarn with a nep level over 50% will show little pilling on the surface. The yarns were also tested for hairiness, and here the test results varied even more widely. Values ranged from below 25% USPTM to above 95%. Fabrics made from yarns with such different hairiness values will never ever look the same, and as these test results demonstrate, spinners testing only yarn evenness are making a potentially serious error. They would clearly be wrong to place any confidence in producing yarns to meet customer needs under these circumstances."

Common practice or best practice?

Some yarn users have developed a policy of taking sample packages from a yarn lot and 'testing' them by running the yarn through their

weaving or knitting machines. But the effort of knitting or weaving a fabric can be reduced to the minimum or eliminated if you have a yarn test report containing reliable information relating to fabric appearance. The USTER® TESTER 5, the heart of textile quality control, provides testing data which can predict exactly how a fabric will look and feel. The USTER® CLASSIMAT 5 identifies the number of disturbing thick and thin places, helping to assess fabric defects.

Together the parameters measured by USTER® TESTER 5 and the USTER® CLASSIMAT 5 can help to assess fabric appearance issues and downstream performance. Both instruments correlate all quality parameters to the USTER® STATISTICS value, for easy comparison.

Understanding yarn quality control is crucial if spinners want to develop and maintain a customer base to be proud of. That will only be possible when consistent quality is guaranteed by hard facts and reliable data, not left to chance or based on half-hearted testing. Spinners without an efficient quality control concept risk losing a lot more than just the odd customer: they are putting the good name of their entire business on the line. We are obliged to the customers, but also to our own reputation, to make sure that fabric made from our yarns leads to satisfaction. A comprehensive quality control is the least we can do.



Fig. 1: USTER® TESTER 5-S800 - The heart of textile quality control



Fig. 2: USTER® CLASSIMAT 5 - The Yarn Classification System

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WITH VAN DE WIELE : FINE, FINER, FINEST ...

Introduction

Customers are interested in creative and innovative products. So is the one who wants to buy a nice carpet which suits his room, house, apartment or any other place.

The tools to make these attractive products are just a means but are so important we can't neglect to have a close look. It is with pride we announce at Van de Wiele, we have the tools you need to produce these creative, colourful, high-density carpets.

The three rapier handlook weave structure

When we are talking about high-density carpets, we are thinking handmade carpets. The final aim of machine made carpets has always been to weave perfect look-a-like handmade carpets.

Van de Wiele has developed therefore a patented three-rapiers weave structure (see figure 1) in order to achieve a crystal sharp pile side and a hand-look backside (no warps visible). By using three rapiers, the production is 50 % higher compared to similar qualities woven on a double-rapier machine.

The three-rapier technique gives many other advantages. As only the working pile yarns are moving and the incorporated pile yarns are stationary, the machine has a higher weaving efficiency and the carpets have a cleaner back side. Moreover, a thicker pile yarn can be used. The incorporated pile yarn is perfectly straight, reducing the consumption of dead pile yarn. As all pile tufts go to the backside of the carpet, the pile fixation is perfect.

Thanks to the three rapiers, some colour switches can be made over the inside pick. The advanced and intelligent Design Master in the We@velink software system automatically eliminates possible mix-contours and double points in the carpet design. When respecting design rules and utilizing the above software, a perfect design on the pile side is possible.

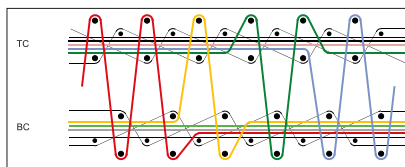


Fig. 1: three-rapiers system giving 50 % more production compared to a two-rapiers system weaving in three shots

The handlook quality in reed 1000 dents/m and more

The HC/X2 weave structure is used in reed densities from 300 d/m up to 1200 d/m and from six up to ten colours, for classic as well as modern designs.

The most common quality in reed 1000 dents/m has a density of ten pile rows/cm, resulting in a carpet with 2.000.000 points/m², (see figure 2). Many different pile yarns can be woven on the HC/X2 : wool, acrylic, polyester, polypropylene, silk, viscose, bamboo... Different pile heights can result in carpets with a weight between 2.4 and 3.6 kg/m².

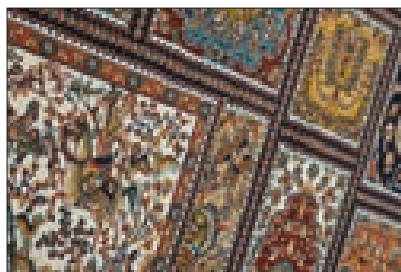


Fig. 2: hand-look carpet in reed 1000 dents/m with no visible warp yarns at the back side and a crystal sharp pile side

The Handlook Carpet Innovator HC/X2 weaving machine

The Handlook Carpet Innovator HC/X2 machine (see figure 3) is a three-rapiers weaving machine, especially developed for weaving hand-look carpets. The machine is based on the Innovator generation, which is a strong and rigid machine, equipped with the Van de Wiele state-of-the-art servo drive technology for an increased flexibility and productivity. Proof is given by many references in Iran, Turkey, Belgium, China...



Fig. 3: the three-rapiers Handlook Carpet Innovator HC/X2 machine, with a Jacquard capacity of 30.000 solenoids for weaving carpets in reed 1000 d/m, ten colour frames, 3 m width

Features of the new Handlook Carpet Innovator HC/X2 weaving machine Smart servo drive technology

A new era has started with the introduction of the innovator range. The implementation of the servo drive technology allows a flexibility never seen in design, reed density and operation of the Van de Wiele innovator weaving machines. Moreover, the production capacity has increased through better stability and less mechanical parts.

With the use of Smart Frames, where each of the ground heddle frames is driven by a separate servomotor (see figure 4), the advantages of this system are numerous. Smart frames allow easy changing of different ground weave structures directly programmable from the controller. The use of servomotors also allows timing differences, different dwells and asymmetric motions to weave carpets with a clean back and less incorporated yarns. These parameters are not programmable on an electronic dobby.

The tight warp can be put in two layers, leading to a higher weaving efficiency, a better pile height control and carpets with more points that are easy to fold.

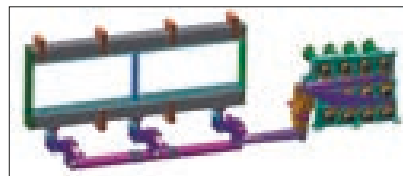


Fig. 4: Smart Frames with twelve servomotors to drive the ground heddle frames giving a higher weaving efficiency and a better quality of carpet

The Smart Filling Selector is driven by linear actuators, switching between thick and thin fillings for the outside rapiers. The new filling brakes and updated pre-winders guarantee a smooth insertion of the filling.

The Handlook Carpet Innovator HC/X2 machine is foreseen with a Smart Cutting Motion. This programmable servo-driven cutting motion assures greater stability, less mechanical parts and wear, and better quality cutting necessary for higher pile densities.

The selvedge yarns of the Smart Edges (SE), driven by small servomotors are programmable and installed under the cumber board for easy access and adjustment in the width.

In order to reduce the power consumption of all above mentioned servomotors, the HC/X2 machine has an energy bus. In the energy bus, the energy flow between the different motors is controlled.

The enhanced and reinforced HC/X2 Jacquard machine gives, with only one solenoid per harness band, the four positions that are required for three-rapiers weaving. The asymmetric settings and the unique possibility to put the pile yarns in layers, increase the efficiency.

Significant Jacquard capacities allow weaving many qualities in different reed densities (from 300 d/m up to 1200 d/m) in different widths (from 3 m to 5 m) and different numbers of colours.

In order to get even closer to the real handmade carpets, the Smart Frames and the Jacquard machine allow weaving carpets with natural fringes, either by warp or by filling.

Bright future

With the hand-look carpets, the excellent design density and clarity are shown in reed 1000 d/m and 1200 d/m. Unique and amazing hand-look carpets in reed 1000 d/m - ten colours and reed 1200 d/m - eight colours are available.

Different piles such as acrylic, polyester, viscose, bamboo, silk or wool are possible. Perfect pile fixation, clear backside, natural fringes by warp or filling, carpets that are easy to fold ... it is a perfect look-a-like

handmade carpet.

The HC/X2 is a three-rapiers machine, inserting three fillings at each machine cycle, and at the end of the day, giving 50 % more carpets compared to a two-rapiers machine.

Depending on the reed density, the Handlook Carpet Innovator HC/X2 is available in up to twenty colours.

Until now, machine made carpets have never been as close to handmade. With Van de Wiele: fine, finer, finest...

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VERDOL'S LTC CY TWISTING AND CABLING MACHINE

Once again, Verdol is demonstrating its competence across the twisting process and new production methods! Indeed, further to many audits with customers through R&D, Quality, Laboratory and Creative managers, the Verdol company decided in 2012 to share its expertise through a lab machine, the LTC CY suitable for two-for-one twisting, cabling and direct cabling process.

From the concept to the product

In tune with fast moving fashion trends, this is our motto! Therefore, we have been working for several years with people which always look for challenging markets with new applications, involved in every aspects of yarn control or in charge of lab works for sampling.

Into the flooring industry for rugs and carpets, most of big carpet mills are coming out now with environmental product declarations. Due to those new environmental performance goals, lab work may become increasingly important role from concept to the product passing through design, development and sampling. For a maximum benefit in terms of new production methods, Verdol is offering the LTC CY, a specific product combining all the advantages of our well-known technologies and services.

Amazing ergonomy!

The LTC CY is designed with a compact and fashionable look, fast to unload from lorry, ready to start and

being easily removable. With the LTC CY, we offer an optimum of flexibility thanks to the autarkic design of its individual compact motor spindle. Indeed the LTC CY combines twisting, cabling, direct cabling positions with single drives. Then, each spindle can be individually and remotely set with setting parameters. Different raws, several twists, multi-ply yarns for hybrid constructions become now possible. As far as there is no panel or touchscreen PLC for the machine control, your own personal computer is dedicated into a perfect LTC drive and control system. Then, your entire computer stays at your fingertips from your desktop to files, with your softwares and messenger for more flexibility!

Friendly IT control system

Today, we all need, together with a twister, tools providing insight into the relationship between energy consumption and production; it does allow quick identification of energy saving potential. Thanks to the LTC web based IT control system, you can easily set, save and share all textile data from your recipes. Our Monitoring Unit System for Textile machines (M.U.S.T.), allows also combined presentation of instant data from your twister thus showing key performance indicators at a glance!

The best flexible machine for very small production lots

Typically for commercial market's actors involved in carpet tiles,

customers are always looking for an ideal machine dedicated for small lots. With the LTC CY, it enables sample packages produced at the same time with small lots on one machine. Then, sampling can become "for extras" thus ensuring an optimal and efficient use of your machine.

So how easy does it become to operate together on six positions:

- one very small lot of 1100/1/2 dtex PET BCF on position #1,
- quality control readings onto the position #2 running a 1400/1/2 dtex PTT BCF,
- energy saving tests with heaviest yarn count and optimized spindle speed with PP BCF onto position #3,
- last but not least, together with a new 5-ply yarn construction operated from #4 to #6 positions with a PA66 BCF!

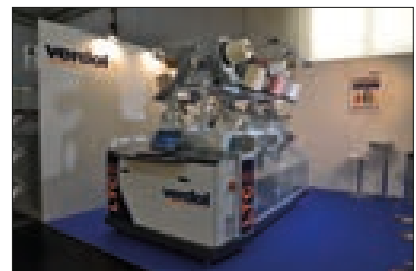


Fig. 1: the Verdol's LTC CY twisting and cabling machine

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CREATING CONFIDENCE - SECURING COMPETITIVE ADVANTAGES BRÜCKNER AND MATESA ARE THE BEST EXAMPLES

For 65 years BRÜCKNER is known as worldwide leading in the production of machinery and line systems for the finishing and coating of textiles, woven technical fabric, nonwovens and other planiform materials. All machines are manufactured exclusively in BRÜCKNER's own site in Germany and the technology centre at the headquarters in Leonberg near Stuttgart offers large and sufficiently possibilities for tests with the customer's products and for the development of new products.

Matesa Tekstil A.S. has been established in 1989 in Kahramanmaras and is now one of the biggest textile companies in Turkey. In total Matesa has 2500 employees and is divided into four production sites:

1. spinning mill with a daily production capacity of 100 tons of yarn,
2. production site for knitted fabric with approx. 150 circular knitting machines and several stenters and relaxation dryers,
3. production site for woven fabrics with approx. 200 looms for gabardine, velvet and shirting,
4. production site for denim with approx. 200 looms and finishing lines.

MATESA's philosophy is based on clear principles: top quality, fast service and highest reliability provided by a modern machinery which is always state-of-the-art. One of the reasons why MATESA buys since 2001 BRÜCKNER machines. Just recently a BRÜCKNER line has been set into operation - a relaxation dryer of the RX3 type with three fabric passages and an integrated innovative energy concept.

With great pleasure Mr. Calik, founder and Director of MATESA, looks back on the 25 years of the company's history. He is proud that MATESA is today one of the top 10 Turkish textile companies and one of the top 400 companies in Turkey in general.

BRÜCKNER:

Mr. Calik when did you buy the first BRÜCKNER machine?

MATESA:

We bought the first BRÜCKNER machine, a stenter with six zones, in 2001 and until today it is still operating perfectly. The concept of the half-zone-wise air circulation has convinced us. We found that the temperature distribution across the complete fabric width is absolutely uniform and this is essential for our high-quality products. For this reason we bought in the following years many other BRÜCKNER stenters.

BRÜCKNER:

Up to now you had only relaxation dryers made by other producers in your factory. What made you now buy a BRÜCKNER relaxation dryer?

MATESA:

The innovative concept of the new three-passage dryer was simply convincing. It is an absolutely perfect idea to heat and pre-dry the fabric in the first fabric passage with exhaust air from the second and third fabric passage. This requires no additional thermal energy. Today we know that particularly the energy costs are an extremely high portion of the overall production cost and this dryer concept starts exactly at this point.

BRÜCKNER:

And how is the production capacity of the machine?

MATESA:

The machine is in production since approximately one year. Depending on the type of fabric we are producing up to 20 tons per day and we achieve very good residual shrinkage values. But much more important is the specific energy consumption such as m³ of gas per kg of fabric. This is clearly better with BRÜCKNER than with other suppliers. The energy consumption of BRÜCKNER's relaxation dryer is - depending on the process - by 15-30 % lower than the results of the other dryer producers.

BRÜCKNER:

Some years ago most of our customers had absolutely no feeling for this parameter. Almost nobody was

able to tell instantly the prices for one cubic meter of gas, on kilowatt-hour of power, one kilogram coal or one litre of oil. Today all of these prices are omnipresent for our customers. BRÜCKNER deals intensively with this topic already for many years and therefore our machines are working efficiently and with optimized energy consumption. This subject has top priority for all of our new developments and enhancements.

MATESA:

This corresponds with our company's philosophy. The reduction of our energy costs is one of the most important measures in our company. The pricing pressure in the sales of our products is already today extremely high and the energy costs are increasing. If we want to remain competitive in the future, we have to start at this point and for this BRÜCKNER is the optimal partner.

BRÜCKNER:

What else did convince you with BRÜCKNER?

MATESA:

BRÜCKNER is a family business run by its proprietor and produces exclusively in Germany. This gives us confidence which is very important for us in our business life. And the fact that we are continuously in contact suits us. No matter if before or after the purchase of a line, either BRÜCKNER itself keeps in touch with us or my technical staff or their representative in Turkey INTER TEKSTIL. This is also an important criterion for us. For us BRÜCKNER is not only the supplier of our machines but also a partner which should accompany us over the years.



Fig. 1: BRÜCKNER POWER-RELAX3 relaxation dryer at MATESA

DYNEEMA® WILL BE USED BY REPUBLIC OF KOREA (SOUTH KOREA) ARMY FOR MULTI-PURPOSE BODY ARMOUR PROGRAM

DSM Dyneema, the inventor and manufacturer of ultra-high molecular weight polyethylene (UHMwPE) fibre, branded as Dyneema®, and world leader in life protection materials and high performance fibres, is proud to announce that Dyneema® will be used as the ballistic protection material of choice and key solution for enhanced lightweight armour for the Republic of Korea (South Korea) Army Multi-purpose Body Armour Program.

We are extremely pleased that Dyneema® will be a ballistic protection material of choice for both vests and inserts for the multi-purpose body armour program in South Korea. Dyneema® provides multiple benefits as a lighter weight and more durable solution that does not compromise ballistic protection compared to conventional materials. It allows modern military defence

personnel to carry more equipment, operate with greater agility, speed and comfort for longer periods of time.

The Multi-Purpose Body Armour Program is part of South Korea's efforts in soldier modernization, seeking to equip defence personnel with lightweight armour that provides enhanced protection over a large area of the body, thus increasing protection and survivability.

This multi-year program will see the Republic of Korea Army equipped with bullet-resistant vests and insert panels that incorporate UHMwPE unidirectional material from DSM Dyneema, capable of protecting against a wide range of ballistic threats including fragments and rifle ammunitions. Production of the bullet-resistant vests and inserts will start this year.

The adoption of composite materials in general, and Dyneema® in particular, meets the needs for soldier modernization programs for life protection around the world, and the South Korean Multi-purpose Body Armour program is another testament to DSM Dyneema's innovative success. With our expanded product portfolio and advanced innovation platform, DSM Dyneema continues to lead the market by offering our customers globally the opportunity to significantly reduce body armour weight while maintaining enhanced ballistic protection.

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OERLIKON NEUMAG'S NEW STAPLE FIBRE PLANT FOR THE PRODUCTION OF SMALLER LOT SIZES

by Claudia Henkel and Mathias Groener-Rothermel

There is a constant increase in the demand for manmade fibres from polyester, polypropylene or bicomponent fibres for the production of nonwovens used in the manufacture of, for example, geotextiles, filters, and automotive or special applications.

In 2015, global demand of 3.2 million tons of fibre has been forecast⁽¹⁾ for the production of carded nonwovens, which corresponds to an average annual growth rate of more than 5%. The average requirement for the production of carded nonwovens is around 15-20 tons of fibres per day per plant.

To date, it has not been possible to economically produce such small lot sizes. However, with the Staple FORCE S 1000, Oerlikon Neumag has introduced a plant onto the market to solve this issue.

Staple FORCE S 1000

This new staple fibre plant is economical, flexible and compact. A moderate initial investment, a

modernized technology and a capacity of up to 15 tons per day result in efficient production. The new plant is aimed at fibre producers with small lot sizes and downstream integrators who, in future, want to produce fibres in-house, enabling them to produce and further develop end products with maximum quality control.

In addition, fibre producers now have the possibility of economically serving niche markets that, up to now, have been unprofitable owing to their low sales volume.

The plant's compact construction is the key to economical and flexible production. The simple handling, beginning with the spin packs to be mounted from the top, an easy threading of the fibre tow with a threading injector up to the crimper, to the short paths from the spinning positions to the baling press allow the Staple FORCE S 1000 to be operated by only two operators.

The combination of a compact construction and quick operability enables a fast, efficient product

change with significantly lower waste rates than with conventional plants on the market.

1000 m/min

In order to economically produce small capacities up to 15 tons per day, a significantly higher production speed than with conventional one-step processes is necessary. The fibre tow produced in three spinning positions is drawn and crimped at 1000 meters per minute with the Staple FORCE S 1000.

To attain these high process speeds, the draw process has been changed. Whereas previously the drawing was effected by means of large drawing units, steam and water baths, the drawing with the Staple FORCE S 1000 takes place in a dry condition over godet duos.

Oerlikon Neumag has used this technology successfully in its bulked continuous filament (BCF) yarn plants for many years. Owing to this simplified process, steam and heat transfer

media (HTM) are no longer required as energy media. The water application in the process is significantly reduced, thus leading to a distinct reduction of the energy requirement.

This changed technology also results in a very compact design of the plant. All components from the extruder up to the baling press are installed on a total area of just 450 m². Special machine foundations are not necessary; standard industry flooring is adequate.

Crimper Technology

At production speeds of more than 1000 m/min, there are high demands on the crimper for the Staple FORCE S 1000, which has been redesigned according to the stuffer box crimping principle. The new crimper ensures easy tow threading with a threading injector due to an open access. Therefore the bearings for the rollers are mounted on one side. All stuffer box parts are easily accessible and can therefore be quickly and simply exchanged.

For highest precision

Highest demands are not only made on the spinning system, the drawing and crimper, but also on the cutter, which has to accommodate the fast process speed.

The NMC-H 290 is best laid out for this speed due to its horizontally aligned cutting principle. Staple lengths from 1.5 to 150 mm can easily be attained with highest precision.

The new staple fibre plant was first introduced to the market in April at Index 14 in Geneva, Switzerland.



Picture 1: on this three spinning position the Staple FORCE S 1000 reaches spinning speeds of up to 1000 m/min



Picture 2: the stuffer box principle guarantees easy operation

(1) The Future of Nonwovens to 2015 – Global Market Forecasts, Phillip Mango, page 74

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SSM GIUDICI CONCLUDE A LARGER ORDER

SSM GIUDICI conclude a larger order of twenty-three machines (3000 spindles) with one of the worlds most recognized manufacturer of high quality polyamide yarns.

The fast growing synthetic fibre market requires reliable high-quality processing machines. One of the worlds most recognized manufacturer of high-quality polyamide yarns has read the signs and is investing in new machines to increase their capacity.

SSM GIUDICI will deliver a total of twenty TG30-A automatic false-twist texturing machines, one TG30-AE automatic false-twist texturing machine with integrated elastomer unrolling device and one RG12-DTB automatic false-twist texturing machine for coarse yarn counts.

The machines combine a proven straight texturing zone through the entire texturing zone for the production of fine and medium count false-twist textured polyamide and polypropylene yarns, a low machine profile for user friendly and efficient operation and a sturdy design resulting in low maintenance cost.

One SSM DP5-T DIGICONE® *fastflex*™ air-texturing machine completes the order. The well-known DP5-T is designed for the flexible production of high-quality air-jet textured yarns. All types of continuous filament yarns (PES, PA, PP, glass, etc.) can be processed to a large range of yarns for a wide variety of applications such as apparel, automotive, home furnishing, sewing threads and technical yarns.

The machines will be supplied in five stages and by the end of 2016 all twenty-three machines (3000 spindles) will be in full operation.

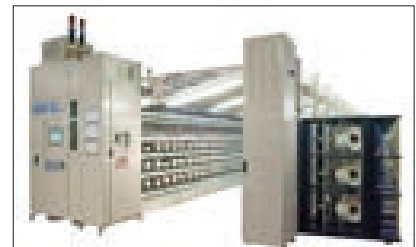


Fig. 1: a SSM GIUDICI TG30-A automatic false-twist texturing machine

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Unitex

HET VOLGENDE UNITEX-DOSSIERNUMMER ZAL HANDELEN OVER HET THEMA:

The factory of the future

TOSHIBA TEC INKJET BUSINESS GROUP TARGETS THE LABEL AND PACKAGING MARKET

TOSHIBA TEC has a large worldwide installed base of piezo-electronic DOD inkjet heads in a wide range of industrial applications. TOSHIBA TEC Inkjet Business Group has now additionally targeted its technical expertise and engineering precision on the label and packaging market. This new focus will be welcomed by digital press manufacturers, who until now have been very restricted in their choice of industrial inkjet

heads. TOSHIBA TEC inkjet heads are renowned for their reliability, consistency and high print quality.

The label and packaging industry is an important and strategic market for TOSHIBA TEC Inkjet Business Group. LabelExpo Americas is a key event to showcase our dedicated inkjet heads, an array of innovative solutions for the label market and other narrow web industrial markets.

More information on TOSHIBA TEC can be found at www.toshibatec.co.jp/en/products/industrial/inkjet/

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PICANOL'S TRAINING CENTRE AND TEST AREA IN IEPER INAUGURATED BY MINISTER PRESIDENT GEERT BOURGEOIS

End September Picanol inaugurated its new training centre and new test and shipping area in Ieper. The official inauguration took place in the presence of Mr. Geert Bourgeois, Minister-President of the Flemish Government. Since improving the competitiveness through further productivity and quality improvements and targeted investments is a top priority, an investment program for an amount of 17.5 million euros in Ieper was approved in 2013.

This investment plan includes a new training centre, a new test and shipping area for weaving machines and the purchase of several production machines.

Training takes your talent further

Well trained employees are important for optimum machine and plant performance. The weaving industry is no exception : the quality of the fabric and the performance of the machine are determined not only by the input materials and the machine itself, but also to a large extent by the way the materials and the machine are handled. Picanol naturally attaches the highest importance to good training, and so last year it was decided to invest in a state-of-the-art training centre. With three fully equipped training rooms (each with two weaving machines, cut models, mini-workshop etc.) covering a total area of 270 m², the new training centre allows Picanol to

train the technicians of its worldwide customers on its weaving machines under optimal conditions.

The new training centre measures about 600 m² and also houses a guest centre and several meeting rooms.

Focus on quality



Fig. 1: the inauguration of the new training centre and test zone by Minister-President Geert Bourgeois marks a new milestone for Picanol in Ieper

The new test area replaces the old one and is equipped with 24 test stations. All weaving machines leaving the assembly lines are mechanically and electronically tested in the new test area before they go to the customers, enabling Picanol to offer an even higher quality and reliability. After all, quality is essential and therefore the highest priority of Picanol. Following testing and final check, the machines are put on a moving carpet, where accessories are added and packaging of the machines is done. After the packaging line, the machines are placed in the buffer zone awaiting shipment. Since the summer of 2014, the shipping area

has been housed in a new space with two loading docks and one loading space. Every day, trucks with containers depart from this area to take Picanol weaving machines to all corners of the world.

The Picanol Group

Through its division Weaving Machines, Picanol develops, manufactures and sells high-tech weaving machines based on air (air-jet) or rapier technology. Picanol supplies weaving machines to weaving mills worldwide, and also offers its customers such products and services as weaving accessories, training, upgrade kits and spare parts. For more than 75 years, Picanol has played a pioneering role in the industry worldwide, and is one of the current world leaders in weaving machine production.

The division Industries covers all other activities of the group: Proferro comprises the foundry and the group's machining activities. It produces cast iron parts for e.g. compressors, agricultural machinery, and Picanol weaving machines. Through PsiControl, the group specializes in the design, development, manufacturing and support of a.o. controllers for various industries. Melotte develops and produces innovative product solutions using Direct Digital Manufacturing (DDM) and Near-to-Net-Shape Manufacturing (NNSM) technologies.

In addition to the headquarters in Ieper (Belgium), the Picanol Group has production facilities in Asia and Europe, linked to its own worldwide sales and service network. The Picanol Group employs some 2000

employees worldwide and is listed on NYSE Euronext Brussels (PIC). The Picanol Group was founded in 1936 and celebrated its 75th anniversary in 2011.

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VAN DE WIELE INVESTS \$5 MILLION IN CHATTANOOGA USA

Van de Wiele, one of the biggest manufacturers of high-performing machines for the textile industry with headquarters in Belgium, announces a \$5 million investment in a new facility in Chattanooga TN. Following last year's acquisition of the tufting machine manufacturer Cobble, Van de Wiele has confirmed that they are to build a new facility in the area. The new facility will be on Relocation Way, Ooltewah (Chattanooga) just a few miles from VDW's US manufacturing Plant.

Following the building completion, Van de Wiele plans to move all of its' US operations to the Chattanooga area, a process they hope to have completed by the end of 2014. "The construction of this new facility will put us in an ideal location to support the carpet industry," said Bob Harding, president of Van de Wiele. "Its proximity to Atlanta with the improved air links to the rest of the USA and Central America will also put us in a better position to support our activities in knitting, weaving and

tufting across the entire market."

"We are all looking forward to this exciting new chapter for the Van de Wiele group of Companies in the USA. The new facility will provide service and support for all of Van de Wiele's operations in the USA, with the focal point being a 'state of the art' sampling and development centre for tufting."

"Chattanooga is the birthplace of tufting with a long tradition in the flooring industry," said Charles Beauduin C.E.O. of the parent company Michel Van de Wiele nv in Belgium. "It is also home to a number of businesses which are market leaders in other fields which bodes well for the future of the area. Our investment in this new facility is a clear indication of our intent to build on Cobble's long tradition in tufting, as well as continuing to develop our support for the US textile industry as a whole."

"Van de Wiele is a leader in the global textile industry, and it's great to see a world class supplier

not only establishing a presence in Chattanooga, but making Chattanooga operations central to their organization. It's always exciting to add to our growing list of international companies, and I'm glad to see Van de Wiele building on Chattanooga's expertise in the flooring industry," said Hamilton County Mayor Jim Coppinger.

The Van de Wiele Group of Companies, which has about a dozen production units worldwide, is one of the world's leading suppliers to the textile industry. In addition to its' activities in the textile industry Van De Wiele is also involved in bulk handling, micro-electronics, and drives which it supplies to other industries.

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C&A FOUNDATION STEUNDE PINK RIBBON MET EXCLUSIEVE DRAAGTAS VOOR BOEZEMVRIENDINNEN

Traditiegetrouw was oktober dé Pink Ribbon-maand.

Samen met Pink Ribbon en andere commerciële partners ging C&A ook dit jaar de strijd aan tegen borstkanker, een thema dat C&A nauw aan het hart ligt. Borstkanker is een thema dat heel wat vrouwen bezighoudt.

Als modebedrijf spreekt C&A veel vrouwen aan en binnen het bedrijf werken ook grotendeels vrouwen. Bij C&A zijn we ervan overtuigd dat elke vrouw de kans moet krijgen om zich goed in haar vel te voelen en er elke dag opnieuw fantastisch uit te zien, en dat in haar rol als moeder, vrouw, echtgenote en (boezem)vriendin.

Daarom steunt C&A Pink Ribbon ten volle. C&A wil meer zijn dan een louter commerciële organisatie en vindt het belangrijk om haar verantwoordelijkheid in de maatschappij op te nemen.

Deel je draagtas voor het goede doel!

Ook dit jaar stond de actie in het teken van 'boezemvriendinnen'. We hadden er bewust voor gekozen om de succesvolle actie van vorig jaar te herhalen. Via verschillende mediakanalen en het eigen winkelnetwerk verdeelden we draagtassen. Wie met de tas kwam shoppen bij C&A ontving

bij elke aankoop een stempel van 1 euro. Dus, één stempel leverde 1 euro op, een tweede stempel 2 euro, een derde stempel 3 euro, enz. Dit bedrag kon je gebruiken als korting bij je aankoop of schenken aan Pink Ribbon. Bedoeling was om de draagtas na het shoppen zoveel mogelijk door te geven aan vrienden, familie of collega's, om zo het bedrag voor Pink Ribbon te verhogen.

Op 23 en 24 oktober ontving je in alle C&A-winkels in België en Luxemburg de roze Pink Ribbon-draagtas die je twee weken lang, tot 7 november, kon delen. Ook de etalages waren gedurende de maand oktober in een Pink Ribbon-kleedje gestoken en

de verkoopsters speldden met veel enthousiasme het roze lintje op.

De C&A Foundation, een hart voor de samenleving

Via de C&A Foundation steunt C&A al jaren waardevolle projecten in de samenleving. Met winkels in vele steden voelt C&A zich immers nauw verbonden met de lokale gemeenschap. C&A kiest ervoor om met een beperkt aantal goede doelen een langetermijnrelatie uit te

bouwen. Naast de samenwerking met Pink Ribbon, steunt C&A Foundation dit jaar ook Beyond the Moon.

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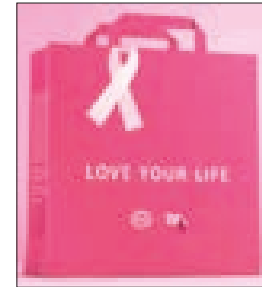


Fig. 1: de C&A-draagtas

DR. HELMUT MÄLZER OF EUROPEAN BEDDING INDUSTRIES' ASSOCIATION, WINNER OF THE 2014 EBIA AWARD

The European Bedding Industries' Association (EBIA), the umbrella organization of the bedding industry in Europe, announced dr. Helmut Mälzer as the winner of the 2014 EBIA Award. Working as a resident orthopaedist in Berlin, Helmut Mälzer is a founding member of the German and International Society for Extracorporeal Shock Wave Therapy on the Musculoskeletal System (DIGEST). He currently serves as vice-president of the German Professional Association of Specialists in Orthopaedics and Trauma Surgery (BVOU) and is also a member of various medical associations. Over the years dr. Mälzer has worked hard to facilitate networking among stakeholders across the healthcare industry. As an expert orthopaedist he has also drawn public attention to the impact of a good mattress on sleep quality. With this award, EBIA recognizes Helmut Mälzer's dedication to sleep quality and his bridge building efforts with the bedding industry. EBIA will therefore further strengthen its ties with dr. Mälzer, to pave the way for the improvement of the sleeping experience of consumers all over Europe.

The EBIA Award

Being the European representative of an industry producing quality products aimed at the wellness and comfort of its customers, EBIA

created the EBIA Award to promote creativity and innovation within this sector. Next to becoming an honorary member of EBIA, the winner is also rewarded a 5000 euros grant to support his/her ongoing work in the field of sleep.

Award winner

This year, EBIA's members overwhelmingly voted in favour of the dr. Helmut Mälzer from Germany. Over the years dr. Mälzer has worked hard to improve and intensify networking between all the stakeholders in the health policy sector, organising and defining the professional framework for orthopaedic and trauma surgeons among others. A qualified orthopaedist, dr. Mälzer specialised in orthopaedics, trauma surgery, rheumatology, chiropractic, acupuncture and pain management by 1990. He opened a practice in Berlin in 1991.

Since 2003 dr. Mälzer has also been a member of the Berlin General Medical Council and the Berlin Medical Supply Committee as well as a board member of the Physicians Initiative of the Berlin MEDIC Association. As an orthopaedist dr. Mälzer has repeatedly underlined the importance of a good mattress as a factor in sleep quality and good health in the press. For dr. Mälzer a mattress has to be comfortable regardless of your sleeping position.

The only way to find the right mattress is through extensive testing and expert advice in the shop where you buy it. According to dr. Mälzer an old lumpy mattress can give rise to back problems and mattresses should be replaced after seven to ten years.

Investment in the future

In recognizing Helmut Mälzer's contribution to facilitating networking across the healthcare sector, the 2014 EBIA Award underlines the Association's commitment to the overall wellbeing of consumers and EBIA's firm intention to support this kind of contribution. EBIA believes that the efforts of Helmut Mälzer and others like him will help underscore the link between good and relaxing sleep on the one hand and health, wellbeing and energy in daytime on the other hand. This will benefit society as a whole which the bedding industry strives to serve with ever-improved products and services.

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Het ideale geheugen laat ook ruimte voor vergetelheid

(Gys Miedema)

EEN LAND ZONDER INDUSTRIE IS GEEN LAND MEER!

Fedustria News Nr. 18 van 28 juli 2014

Textieltopman Jean-François Gribomont

CEO Jean-François Gribomont vecht als een leeuw om Utextbel boven water te houden.

En passant helpt hij als voorzitter van Fedustria mee de zware kar te trekken van de hele textiel-, hout- en meubelsector. “Neem het van mij aan, het is enorm vermoeiend.”

In het kantoor van Gribomont hangt prominent een schilderij van zijn grootvader. Op zijn verzoek ging Gribomont in 1976 in het familiebedrijf werken. Utextbel in Ronse maakte toen enkel producten voor regenkleding. Gribomont, die zo een carrière als hoogleraar bedrijfseconomie aan de Universiteit van Boston aan zich voorbij liet gaan, transformeerde Utextbel tot een gediversifieerde textielgroep met 800 werknemers en klanten in zeventig landen. Gribomont kreeg Utextbel eindjaren tachtig in handen via een management-buy-out, en controleert nu samen met zijn broer 98 procent van het bedrijf.

Intussen loopt hij al bijna vier decennia het vuur uit de sloffen om Utextbel boven water te houden. De 63-jarige CEO trekt zich overigens niet enkel het lot van het eigen bedrijf aan. De voorbije vijftien jaar zette hij zich ook sterk in voor de Europese textielfederaties Euratex en Eurocoton. En sinds vorig jaar is hij voorzitter van Fedustria, de federatie van textiel-, hout- en meubelproducenten, en staat hij op de barricaden voor andere gekwelde sectoren.

“Ze hebben me gevraagd”, verklaart Gribomont. “Ze zeiden: ‘Jij bent nog de enige die vecht voor ons’.”

Al eist die decennialange strijd stilaan zijn tol. “Neem het van mij aan, het is enorm vermoeiend. Je moet altijd met iedere partij gaan discussiëren, iedereen overtuigen. Dat vreet energie. Ik blijf dat doen, maar het maakt het leven zuur en kapot. Je bent altijd nerveus en kwaad, en dat is niet mijn karakter.” Komt daarbij dat de dagen erg lang zijn, al heeft dat toch ook een voordeel. “God heeft me slechts drie tot vier uur slaap per nacht gegeven. Dat is zeer weinig, maar laat me wel toe iedere dag twintig uur te werken.”

Hoe gaat het in uw sector?

JEAN-FANCOIS GRIBOMONT: “De laatste crisis heeft de textielnijverheid zeer zwaar getroffen. Het mag dan gaan om een waaier van bedrijven die weinig met elkaar te maken hebben - van tapijt en weefsels voor kleding tot meubelstoffen en matrasstiksels - we kampen wel vaak niet dezelfde problemen. En we gaan mondjesmaat achteruit. Niet alleen is de consumptie flauw in Europa, zodat de omzet nog altijd niet op het niveau van 2009 uitkomt. Er is ook een structureel probleem. Onze industrie is in Europa en België amper welkom. We hebben de indruk dat we vergeten zijn door Europa en onze politici. We proberen dat te veranderen, maar het lukt nauwelijks. Spijtig genoeg zal het waarschijnlijk pas het geval zijn wanneer onze sector dood is. Maar we blijven vechten. Ik wil niet sterven zonder te roepen.”

Komt er echt geen hulp?

GRIBOMONT: “Ik ontmoet veel politici. Ze hebben begrip voor onze problemen, maar doen er zeer weinig aan. Soms heb je het gevoel dat ze het probleem echt niet begrijpen, en dat ze zeer ver van de werkelijkheid staan. De industriële politiek van Vlaanderen is nul komma nul. Vlaanderen is ook zeer lang pretentius geweest, zo van ‘wij zijn dé regio’. Maar Vlaanderen is zo klein.”

“Ook de administratie is een nachtmerrie. De administratieve belemmering in Vlaanderen is ongelofelijk. Controle na controle doen ze hier, en dat kost een bom geld. Er wordt nooit bekeken of die controles wel nodig zijn. Als je tien jaar lang dezelfde controle hebt gehad, en tien jaar met dezelfde resultaten, moet er dan nog wel een elfde controle zijn? Ze blijven ook telkens nieuwe controles uitvinden. Als je in een fabriek een deur wil veranderen, heb je 27 handtekeningen nodig. Dat vreet energie en tijd.”

“De kracht van de inertie van de ambtenarij in België is de jongste jaren gegroeid. Kabinetten hebben steeds minder te zeggen, de ambtenarij

steeds meer. Er zijn in Vlaanderen wel impulsen gegeven, maar dan door ambtenaren die er niets van kennen. Zij maken plannen die verwijderd zijn van de werkelijkheid. Ze hebben ons de jongste jaren om advies gevraagd. Wij hebben na lang studeren en brainstormen zeer concrete maatregelen voorgesteld, en een rapport voor de administratie. En dan volgt die totaal andere denksporen, die ongelofelijk moeilijk zijn. Waarom vragen ze ons advies, als er toch niets mee wordt gedaan? Ik ben daarvoor zeer kwaad geweest op minister-president Kris Peeters.”

Wat had u gevraagd?

GRIBOMONT: “In de textielsector blijven enkel nog de bedrijven overeind die innovatief zijn en nieuwe producten creëren. Ik kan u tot op de euro zeggen hoeveel wij spenderen aan innovatie. Vorig jaar was dat drie miljoen euro. Wel. Frankrijk heeft beslist dat op zulke investeringen geen sociale lasten moeten worden betaald. Zo’n maatregel zou ook hier een enorme boost betekenen.”

Zonder innovatie ben je dood.

GRIBOMONT: “Absoluut. Dat is wat we steeds hebben verteld aan de Vlaamse regering. En daar komt niets uit.”

Het wordt u onmogelijk gemaakt om hier te werken?

GRIBOMONT: “Dat wordt mij onmogelijk gemaakt door allerlei niveaus. Ik ben ook woedend op Europa. Neem nu het vrijhandelsakkoord van de EU met Vietnam, waaraan Europa werkt. Voor de Europese textielnijverheid wordt dat een grote catastrofe, maar Europa wil dat er per se doordrukken. Niemand begrijpt waarom. Als je daarover vragen stelt aan Europa, krijg je geen antwoord. Als je in België vragen stelt, klinkt het dat ze niet op de hoogte worden gehouden. Vergeet niet dat zestig procent van de export uit Vietnam bestaat uit textiel en schoeisel. Wie is er dan betrokken? Wij toch? Het grootste bedrijf in Vietnam is Vinatex, dat zeventig procent afhangt van de Vietnamese staat. Het heeft onlangs

opnieuw 600 miljoen dollar gekregen om paraat te zijn wanneer het akkoord er komt, om Europa kapot te maken.”

“Ik heb er in het Europese Parlement ook bij heel wat politici voor gepleit dat Reach (het Europese programma dat het gebruik van gevaarlijke chemicaliën aan banden moet leggen, nvdr.) ook zou gelden voor importgoederen. Ik heb hun akkoord ook bekomen. We zijn nu zeven jaar verder, en voor onze goederen wordt Reach steeds strenger. Maar op importproducten is het nog altijd niet van toepassing. Wanneer zal dat dan wel zo zijn? Als alle bedrijven dood zijn? Waarom moet mijn product Reach-conform zijn en waarom een product dat van China, Pakistan of India komt, niet? Dat is toch hallucinant. Wie in Europa produceert, wordt gestraft.”

“Nog een voorbeeld dat catastrofaal is voor onze industrie en dat Europa totaal uit het oog verloren heeft : er is in Europa geen enkele producent van kleurstoffen meer. Wel, de prijs van kleurstoffen is de jongste vier maanden met 60 tot 80 procent gestegen. China en India hebbende markt kapotgemaakt. Er zijn nog vier of vijf spelers in de wereld. Die zitten allemaal ginds en hebben beslist een kartel te vormen. Ik kan niet zomaar aan het Belgische of Franse leger of de Franse politie melden dat de prijs fors is gestegen, of dat ik niet meer kan leveren omdat ik geen kleurstoffen meer krijg om een uniform donkerblauw te kleuren.”

Hoe zit het met het eenheidsstatuut?

GRIBOMONT: “Een industrieel is hier tegenwoordig al gelukkig als er niets negatiefs gebeurt. Maar dat eenheidsstatuut is inderdaad opnieuw een enorme catastrofe voor de textielsector. Als er niets aan wordt gedaan, is een herstructurering in textiel, maar ook in de hout- en de meubelsector, niet meer mogelijk omdat die vier of vijf keer meer zal kosten dan vandaag. Het zal meteen een sluiting worden. Dat betekent dat België over vijf jaar geen textiel-, hout- en meubelsector meer zal hebben. Iedereen weet dat, ook de ministers.”

De problemen nemen alleen maar toe?

GRIBOMONT: “Produceren in Europa en in België is crimineel. Produceer

je in Bangladesh, Cambodja of Vietnam, dan mag je doen wat je wil, iedereen applaudisseert, ook al biedt je geen sociale toegevoegde waarde. Maar als je in België tewerkstelling creëert en veel geld verdient, ben je een bandiet, een dief. Maak je verlies of vind je geen geld, ben je onbeduidend. En ga je failliet, ben je een dommerik. Er is geen waardering voor de industrie.

Terwijl een land zonder industrie geen land meter is. Bij iedere beslissing zou de sociale toegevoegde waarde de parameter moeten zijn : ‘dat mensen een job hebben en aan het einde van de maand betaald kunnen worden’.”

“Maar als je alleen zo redeneert, hoef je ‘s morgens niet meer op te staan. Ik zie zonnestraaltjes in de moed van de mensen en in het feit dat je soms eens een veldslag niet verliest of wint. Soms is er toch wat vooruitgang, bijvoorbeeld bij de publieke aanbestedingen. De EU-lidstaten worden eindelijk aangemoedigd om publieke aanbestedingen niet alleen op basis van de prijs toe te wijzen. Dat is een totale ommekeer in de Europese gedachtegang.”

Hoe moet het nu verder?

GRIBOMONT: “Ken je het liedje van Leonard Cohen, waarin hij zingt ‘*she died without is whisper*’? Kleine firma’s gaan dood, mensen glijden weg in armoede, en je ziet Europa achteruitgaan. Twintig jaar geleden werkten nog 150’000 mensen in de Europese textielsector, nu nog amper 20’000. Hetzelfde gebeurt morgen met de autosector en andere sectoren.

Gelukkig zijn er niches waarin er minder concurrentie bestaat. Maar de industrie wordt nooit aangemoedigd en de mensen vechten niet meer. Veel van die ondernemingen zijn ook familiebedrijven met eigenaars die 60 of 65 jaar zijn. Hun kinderen willen het bedrijf niet voortzetten.”

Zoals uzelf.

GRIBOMONT: “Ik spreek ook voor mezelf, absoluut. Anderen vechten niet meer, maar ik zal blijven strijden. Onze industrie heeft genoeg kwaliteit in zich om goed te kunnen overleven, als de context in Europa en Vlaanderen maar positief zou zijn.”

U kreeg de bijnaam ‘de José Bové van de textiel’, naar de bekende Franse boerenleider en anders-globalist. Voelt u zich soms niet veeleer een don quichot?

GRIBOMONT: “Je mag het zo niet zien. De eerste keer dat ik begon over een verplichte invoering van het label ‘made in Europe’, was de reactie ijskoud. We staan nu toch al veel verder. Niets doen, is geen optie. Je ziet mensen hun job verliezen, in de armoede belanden. Ik ben daar ziek van.”

Wat gebeurt er met Utexbel als u met pensioen gaat?

GRIBOMONT: “Dat zullen we wel oplossen. Ik weet nog niet hoe, maar ik zal mijn mensen niet in de steek laten.”

Er zijn er hier velen die op u rekenen.

GRIBOMONT: “Dat is het net, en dat maakt het leven zeer moeilijk voor mij. Het is een voortdurende nachtmerrie. Ik ben zoals een acteur. Om vijf voor acht zit ik op het toilet, omdat ik zo veel angst heb. Maar om acht uur ben ik van niets of niemand nog bang.”

U hebt vier kinderen?

GRIBOMONT: “Die werken niet in de zaak. Ze hebben me vlakaf gezegd: ‘papa, één gek in de familie volstaat’ (lacht).”

Nog een aanmerking?

GRIBOMONT: “Jazeker. Ik krijg iedere week 500 à 1000 bladzijden tekst over Europese bepalingen, die verteerd moeten worden. Dat vergt veel tijd en energie. Een probleem is dat Europa onbegrijpelijk wordt. Industriëlen gaan niet meer naar de vergaderingen of verlaten ze na tien minuten, omdat er jargon wordt gebruikt dat voor die mensen onverstaanbaar is. Het is immers moeilijker dan Hebreeuws!”

JEAN-FRANCOIS GRIBOMONT zag het levenslicht te Ukkel, werd licentiaat economie aan UCL, MBA en Boston, is gehuwd en heeft vier kinderen.

Hij is eigenaar en CEO van Utexbel, met vestigingen te Ronse, Moeskroen, Kluisbergen en Baisieux (Fr.).

Tevens is hij voorzitter van Fedustria, bestuurder van Euratex en lid van Eurocoton.

ECONOMISCHE ONTWIKKELING IN DE TEXTIELINDUSTRIE

Bron: Fedustria News - Bijlage 2 bij Nr. 18 van 28 juli 2014

Het eerste kwartaal 2014 was positief, maar werd niet bevestigd in het tweede kwartaal

In de loop van 2013 was er een uitgesproken herstel van het ondernemersvertrouwen in de textielsector (grafiek 1). Daardoor steeg de afgevlakte conjunctuurcurve in juli 2013 voor het eerst in ettelijke jaren tot boven die van de totale verwerkende nijverheid. In het tweede kwartaal van 2014 viel het ondernemersvertrouwen in de textielsector echter opnieuw sterk terug. Belangrijke redenen hiervoor zijn de sterke stijging van de voorraden in april en de inzinking van de binnen- en buitenlandse bestellingen in mei. Ook in de verwerkende nijverheid was er in mei een achteruitgang van de brutoresultaten, doch deze was minder uitgesproken dan in de textielsector.

Zoals geïllustreerd in grafiek 2 bleef de bezetting van het productievermogen in 2013 laag, wat aangeeft dat er in elk geval marge is voor een verdere productie- en omzetstijging. Een stijging van de productie tijdens het eerste kwartaal van 2014 met 8% op jaarbasis en met 11% t.o.v. het voorgaande kwartaal evenals een opvoering van de bezettingsgraad van het productievermogen tot 73,1% in april 2014 suggereren een herstel begin 2014.

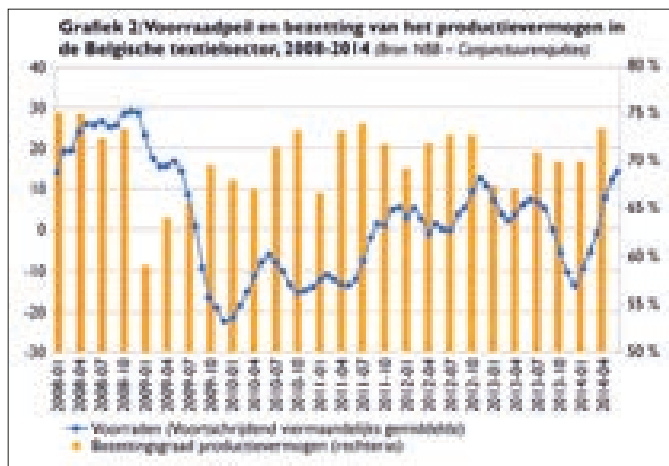
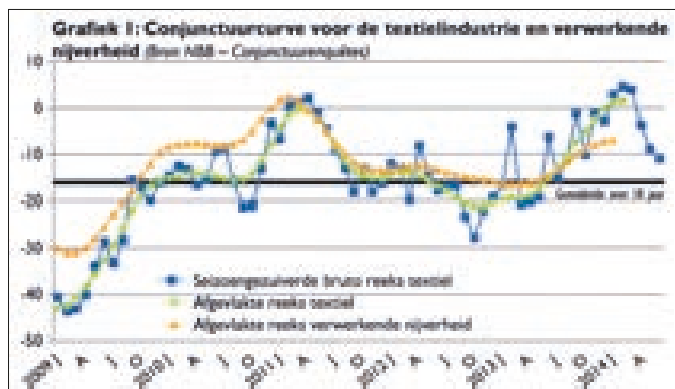
De sterke toename van de voorraden en de neergang van de conjunctuurcurve in diezelfde periode geven echter aan dat dit herstel niet duurzaam is.

De textieluitvoer kende in het eerste kwartaal van 2014 een stijging met 4,6% t.o.v. dezelfde periode 2013. De uitvoer van vezels (+10,9%), interieurtextiel (+6,0%) en technisch textiel (+4,1%) steeg behoorlijk. De

uitvoerstijging van kledingweefsels bleef beperkt tot 1,2%. Garens (-0,9%) en gebreide stoffen (-3,9%) kenden een daling van de uitvoer. De invoer nam met 7,5% toe. Het saldo van de handelsbalans bleef met ca. 650 miljoen euro positief.

Meer uitgebreide informatie over de economische ontwikkeling in de textiel- en kledingindustrie in de lente van 2014 kan u terugvinden in het conjunctuurverslag van de Centrale Raad voor het Bedrijfsleven (CRB) dat binnenkort beschikbaar zal zijn op www.ccecrb.fgov.be (Thema's, Sectoren). Met dank ook aan de opsteller van het verslag, Stephen Renders, secretaris van de commissie textiel en kleding van de CRB.

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UPDATE TEXTIELGRONDSTOFFENPRIJZEN TWEDE KWARTAAL 2014

Bron: Fedustria News - Bijlage Nr. 18 van 28 juli 2014

Polypropyleen- en vlaspijzen stegen, de meeste andere prijzen daalden.

Katoen

De in april 2014 ingezette prijsdaling van katoen hield aan in het tweede kwartaal 2014. De katoenprijs (Cotlook A-index) daalde van 96,87

dollarcenten per pond in maart 2014 naar 91,05 dollarcenten in juni 2014. Dit is een daling met 2,3% in dollar en met 5,2% in euro. T.o.v. juni vorig jaar bedroeg de daling 6% in dollar en 4,5% in euro. De vraag hernam bij deze dalende prijzen, daar de spinners de kans namen om dringende aankopen te doen. Dit

voorkwam dat de markt weggleed. Maar zodra dat de prijzen iets herstelden, droogde de vraag op.

Wol

In juni 2014 lag de gemiddelde veilingprijs voor Australische wol, de EMI, in Australische dollar 3,0%

lager dan een jaar eerder en in euro 6,1% lager. T.o.v. maart 2014 werd een lichte prijsdaling genoteerd met 1,4% in Australische dollar maar een stijging met 3,2% in euro. In de tweede helft van mei 2014 stegen de wolnoteringen op de Australische veiling lichtjes, als gevolg van een toegenomen vraag vanuit China en Italië, gecombineerd met een beperkt aanbod in Australië en Nieuw-Zeeland en de laatste verkoopweek in Zuid-Afrika vóór de verlofperiode van twee maand. Tijdens de eerste twee weken van juni viel de prijs alweer terug. De vraag naar wol blijft in het algemeen zwak.

Vlas

De gemiddelde verkoopprijs voor dauwgeroot gezwingeld vlas bedroeg in mei 2014 188,88 euro per 100 kg (laatst beschikbaar gegeven). Dit is

een stijging met 5,6% t.o.v. mei 2013 en met 1,9% t.o.v. februari 2014. Dit is echter een daling met 2,2% t.o.v. april 2014 toen met 193,17 euro per 100 kg het hoogste niveau sinds november 2011 (195,14) bereikt werd.

Synthetische vezels

Polypropyleenvezel kende een opvallende prijsstijging: +12,4% in dollar en +10,3% in euro t.o.v. juni 2013 en +2,5% in dollar en +4,9% in euro t.o.v. maart 2014. Deze prijsstijging is het gevolg van de onrust in het Midden-Oosten en schaarste o.m. veroorzaakt door de explosie in een Shell-propyleenfabriek in Nederland begin juni. Nylon 1350 dtex BCF kende een lichte prijsstijging met 2,9% in dollar en met 1,8% in euro t.o.v. juni vorig jaar. De prijzen van de andere

synthetische vezels, vermeld in de tabel, daalden lichtjes met 2 tot 4% in dollar en met 3 tot 5% in euro t.o.v. juni 2013.

Tabel: maandelijkse gemiddelde grondstoffenprijzen

Index juni 2014 t.o.v. juni 2013 = 100
(tussen haakjes index juni 2014 t.o.v. maart 2013 = 00)

	In US \$	In euro
Katoenvezel	97,7 (94,0)	94,8 (95,5)
Australische wol ⁽¹⁾	96,9 (101,6)	93,9 (103,2)
Vlasvezel ⁽²⁾		105,6 (101,9)
Acrylvezel	97,1 (95,4)	96,0 (97,9)
Polypropyleenvezel	112,4 (102,5)	110,3 (104,9)
Polyesterstapelvezel 1,7 dtex	97,0 (94,8)	95,9 (97,4)
Polyesterfilament 167 dtex, POY	96,1 (96,9)	95,3 (100,0)
Nylonfilament 17 dtex, POY	97,8 (93,9)	96,7 (96,3)
Nylonfilament getextureerd 78/68	98,1 (94,5)	97,1 (97,1)
Nylonfilament 1350 dtex, BCF	102,9 (98,3)	101,8 (101,0)

⁽¹⁾ In Australische dollar bedraagt de intrinsieke prijsdaling op jaarbasis 3,0%; op kwartaalbasis is er een daling met 1,4%.

⁽²⁾ Mei 2014 t.o.v. mei 2013 = 100 (tussen haakjes index mei 2014 t.o.v. februari 2014 = 100).

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VRIJHANDELSAKKOORD TUSSEN ZWITSERLAND EN CHINA VAN TOEPASSING SINDS 1 JULI 2014

Bron: Fedustria News – Bijlage bij het Nr. 21 van 22-09-2014

Het vrijhandelsakkoord dat Zwitserland en China op 6 juli 2013 sloten, trad op 1 juli 2014 in werking. Het gaat om het eerste vrijhandelsakkoord tussen China en een Europees land. Bij ingang van het akkoord werd de invoer van alle Chinese industriële goederen (inclusief textiel en kleding) in Zwitserland onmiddellijk vrijgesteld van invoerrechten, terwijl 40% van de Zwitserse textielexport en 53% van de Zwitserse kledingexport naar China onmiddellijk vrijgesteld werd. De rest van de Zwitserse textiel- en kledingexport zal een geleidelijke tariefvermindering kennen, gespreid over vijf tot tien jaar.

Zwitserland voert uit China vooral machines en mechanismemiddelen in, textiel en kleding, producten om uurwerken te maken en chemische producten. De belangrijkste producten die Zwitserland uitvoert naar China zijn machines en toestellen, uurwerken, chemische en farmaceutische producten.

Voordelen voor Zwitserland

Het vrijhandelsakkoord verbetert de markttoegang voor Zwitserse producten op de omvangrijke en snelgroeiende Chinese markt. De

preferentiële oorsprongsregels die voorzien zijn in het akkoord Zwitserland-China zijn vrij liberaal (verandering van tariefpost of van postonderverdeling, of waarde van niet van oorsprong zijnde materialen toegelaten tot 60%).

Het besparen van invoerrechten houdt voor Zwitserland een belangrijk concurrentievoordeel in t.o.v. concurrenten uit landen die geen vrijhandelsakkoord hebben met China. Zwitserse producten, gemaakt met Chinese inputs, zullen gevoelig competitiever worden op al hun exportmarkten en wel op korte en middellange termijn.

Gevolgen voor de EU

Wat de uitvoer van Zwitserland naar de EU betreft, kunnen Zwitserse producten dan wel genieten van goedkopere Chinese inputs, maar tegelijkertijd kan dan zelden nog voldaan worden aan de Europese preferentiële oorsprongsregels, waardoor er in de EU invoerrechten betaald moeten worden op de uit Zwitserland ingevoerde producten. De Zwitserse textiel- en kledingproducenten zien dit niet echt als een nadeel, gezien door

de gefragmenteerde textiel- en kledingketting in Zwitserland vaak al niet voldaan kon worden aan de dubbele bewerking, doorgaans noodzakelijk om preferentiële oorsprong te verkrijgen. Voor Zwitserland is het nl. in het kader van het preferentieel akkoord tussen EU en Zwitserland moeilijker om aan de dubbele bewerking te voldoen dan voor de lidstaten van de EU-28, daar de EU-28 als één land beschouwd wordt en de lidstaten de dubbele bewerking kunnen spreiden over twee lidstaten (in feite totale cumul binnen de EU-28), terwijl Zwitserland de dubbele bewerking binnen zijn landsgrenzen moet realiseren.

Voor Zwitserse textiel- en kledingproducten die bij invoer in de EU niet kunnen genieten van nulrechten omdat er niet voldaan is aan de preferentiële oorsprongsregels, moet het tarief derde landen betaald worden. Voor garens is dat doorgaans 4%, voor weefsels doorgaans 8% en voor kleding en huishoudtextiel 12%. Dit zijn dezelfde tarieven die gelden bij rechtstreekse invoer uit China in de EU. Trouwens ook Chinese producten die via Zwitserland naar

de EU uitgevoerd zouden worden, zijn onderhevig aan diezelfde invoerrechten. We hoeven dan ook geen vloedgolf van doorvoer van Chinese producten via Zwitserland op onze markt te vrezen.

Top 10 leverancierslanden van textiel aan Zwitserland in 2013

	In miljoen euro	2013/2012 in %
Duitsland	475	-3,9
Italië	348	1,7
China	137	9
Frankrijk	101	-8,8
Oostenrijk	83	1
Turkije	64	12,9
België	61	7,4
India	55	3,3
Nederland	50	4,9
Verenigde Staten	44	5,8
Totaal wereldwijde	1.474	2,2

Bron: Annual Report 2013 Swiss Textiles, omgerekend naar euro tegen de koers van 1,224 CHF per euro (gemiddelde koers 2013 volgens ADRI).

Belang van de preferentiële oorsprongsregels

Een voorbeeld ter verduidelijking van de preferentiële oorsprongsregels: een weefsel geweven in China heeft in het kader van het vrijhandelsakkoord Zwitserland-China de preferentiële oorsprong China en kan bijgevolg sinds 1 juli 2014 vrij van invoerrechten in Zwitserland ingevoerd worden. In Zwitserland wordt dit weefsel veredeld en vervolgens uitgevoerd naar de EU. In het kader van het akkoord EU-Zwitserland verkrijgt dit veredelde weefsel niet de preferentiële oorsprong Zwitserland. Bijgevolg valt dit weefsel onder het tarief derde landen bij invoer in de EU en zal 8% invoerrechten op het veredelde weefsel betaald moeten worden.

Hoe groot, bij invoer van het Chinese weefsel, de besparing van invoerrechten is voor de Zwitserse fabrikant hangt af van het type grondstof, de graad van afwerking en het gewicht. Zwitserland kent een systeem van invoerrechten gebaseerd op het gewicht en niet op de waarde. Ook is het invoerrecht hoger naarmate de graad van afwerking toeneemt. Zo bedraagt het

normale invoerrecht in Zwitserland (dus voor landen waarmee het geen preferentieel akkoord heeft) voor ruw katoendoek 80 Zwitserse frank per 100 kg en voor een bedrukt weefsel van synthetische vezels 190 Zwitserse frank per 100 kg. In de veronderstelling dat in het bovenstaande voorbeeld ruw katoendoek ingevoerd wordt uit China is de besparing t.o.v. de toestand vóór 1 juli 2014 80 Zwitserse frank per 100 kg of zo'n 65 euro per 100 kg.

Wat met eventuele vrijwaringsmaatregelen?

Toch is waakzaamheid geboden in het kader van eventuele Europese antidumping-, antisubsidie- en vrijwaringsmaatregelen. Bij het opleggen van deze maatregelen wordt de niet-preferentiële oorsprong, meestal gebaseerd op de enkelvoudige bewerking, in aanmerking genomen.

Top 10 landen van bestemming van Zwitserse textieluitvoer in 2013

	In miljoen euro	2013/2012 in %
Duitsland	370	3,3
Italië	113	4,3
Frankrijk	83	1
Oostenrijk	44	-11,3
Verenigde Staten	39	1,8
China	37	27,8
Verenigd Koninkrijk	31	2,7
Turkije	30	-17,8
Hongarije	28	31,4
België	27	31,4
Totaal wereldwijde	1.144	8,2

Chinese producten die door bewerking in Zwitserland als niet-preferentiële oorsprong Zwitserland verkrijgen, zouden dan in de EU niet onder handelsdefensieve maatregelen vallen die op Chinese producten van toepassing zouden zijn. Ten opzichte van de situatie voor de invoegetreding van het akkoord Zwitserland-China houdt deze niet-preferentiële regeling eigenlijk geen enkele wijziging in. Deze, zeg maar legale mogelijkheid, om, na een bewerking, handelsdefensieve maatregelen te omzeilen bestond

voorheen ook, maar bijkomend element is dat er voortaan in Zwitserland ook geen invoerrechten op deze Chinese producten betaald zal worden. De normale invoerrechten, tarief van derde landen, blijft wel van toepassing op deze Chinese producten, die via Zwitserland, de EU binnenkomen.

Handelcijfers

In 2013 voerde de Zwitserse textiel- en kledingindustrie voor 2.299 miljoen euro uit. De textielindustrie nam hiervan 1.164 miljoen euro voor zijn rekening en de kledingindustrie 1.135 miljoen euro. Zwitserland voerde voor 37 miljoen euro textiel uit naar China. China is hiermee de zesde belangrijkste klant van de Zwitserse textielindustrie (zie tabel). Zwitserland voerde 157 miljoen euro textiel in uit China, waarmee China de derde belangrijkste leverancier is van textiel aan Zwitserland. Met een bedrag aan kleding van 61 miljoen euro is China de vierde belangrijkste klant van de Zwitserse kledingindustrie. China is de belangrijkste leverancier van kleding aan Zwitserland met een bedrag van 1.262 miljoen euro.

Zwitserland is ook een belangrijke handelspartner van de EU-28. In 2013 voerde de EU-28 voor 1.372 miljoen euro textiel- en kledingproducten in uit Zwitserland, waarvan 843 miljoen euro textiel en 529 miljoen euro kleding. Maar als klant is Zwitserland nog veel belangrijker voor de EU: de EU-28 voerde in 2013 voor 4.703 miljoen euro textiel- en kledingproducten uit naar Zwitserland, waarvan 1.421 miljoen euro textiel en 3.282 miljoen euro kleding. Voor textiel staat België op de zevende plaats van de leveranciers aan Zwitserland (61 miljoen euro of +7,4% in 2013).

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Unitex

HET VOLGENDE UNITEX-DOSSIERNUMMER ZAL HANDELEN OVER HET THEMA:

The factory of the future

OEKO-TEX® INTRODUCES MYSTeP FOR SUSTAINABLY MANAGED TEXTILE SUPPLY CHAINS

The International OEKO-TEX® Association, a global leader in textile product and facility certifications, announced at TexWorld USA the introduction of MySTeP, a robust, secure database application that houses a textile product manufacturer's information related to its sustainable operations.

MySTeP complements the STeP by OEKO-TEX® certification, a comprehensive certification program 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 country to country.

Dr. Jean-Pierre Haug, General Secretary of the International OEKO-TEX® Association, unveiled the latest OEKO-TEX® innovation at a Texworld USA event attended by brands, retailers, and textile product manufacturers from around the world. "We were very pleased by our guests' positive response to MySTeP," he said. "MySTeP has been designed specifically for the textile products industry and they clearly recognize and appreciate the benefits of that focus."

Beatriz Bayo Gonzalez of Mango added her praise for the new MySTeP management tool. "Sustainability is very important to our company and to our customers. MySTeP will make it easier to manage our complicated supply chain and, equally important, MySTeP will make it easier for our

many partners around the world to work with Mango. It's a beneficial tool for our entire supply chain and will help us all operate more responsibly and considerately."

The MySTeP database facilitates private, confidential communication between customers and suppliers, ensures that compliance data and other certifications 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. Via the supplier dashboard feature, MySTeP provides a simple overview of a company's textile supply chain and the manufacturers that define it. The MySTeP dashboard can also be customized with benchmarks key to particular aspects of a company's sustainability strategy as well as features to track the supply chain's performance against them and other key performance indicators. The new OEKO-TEX® API (Application Program Interface) further aids communication and data sharing via portals and cloud-based vendor management platforms.

"Communication, goal-sharing, and access to timely, accurate information are critical aspects for any company's successful sustainability strategy," says Tricia Carey of Lenzing, whose fibres have been OEKO-TEX® certified for many years.

"I applaud OEKO-TEX® for creating a sustainability certification and a

very useful management tool that helps textile product companies and their suppliers collaborate more effectively."

OEKO-TEX® also offers the globally respected OEKO-TEX® Standard 100 certification for textile products that are tested to be free from harmful levels of more than 300 potentially dangerous substances such as residual pesticides, carcinogenic dyestuffs, heavy metals like lead, and formaldehyde. To learn more about OEKO-TEX® certification systems and tools for textile manufacturers, brands, and retailers, please contact the OEKO-TEX® Secretariat at info@oeko-tex.com.



As a useful complement to the STeP by OEKO-TEX® certification for the evaluation of single productions sites with respect to fair working conditions and environmentally friendly production processes, the MySTeP dashboard offers registered users from brand, retail, and manufacturing companies the opportunity to analyse and manage the sustainability of their entire supply chain by means of key performance indicators (KPIs).

IS ENERGY EFFICIENCY CHALLENGING OR PROFITABLE? SOLUTIONS FOR THE EUROPEAN TEXTILE & CLOTHING INDUSTRY

Euratex

Energy efficiency continues to gain importance in most industries and economic sectors. The energy cost has always been a crucial element for the competitiveness of the European clothing and particularly the textile industry. The International

Energy Agency underlines in its latest report: *"Industrial energy efficiency measures deliver substantial benefits in addition to energy cost savings – enhancing competitiveness, profitability, production and product quality [...]"*

Today companies across the whole textile and apparel value chain place sustainable production and higher resource efficiency at the centre of their growth strategy. This may explain the success of the SESEC(*) project, whose final

conference took place in September 2014 in Brussels where it brought together entrepreneurs, industry representatives, researchers, consultants and policy makers to discuss on the most profitable energy efficiency measures. Coordinated by Euratex, the SESEC project developed tools to help clothing companies in understanding and reducing energy consumption.

In his opening address Mr. Francesco Marchi, director general at EURATEX, pointed out the relevance of energy efficiency for the sector and the goals of the ad-hoc created *Energy Made-to-Measure* campaign. Mrs. Serena Pontoglio from the European Commission, Directorate General for Energy, presented the Commission's communication on energy efficiency published in July 2014. She underlined that to reach the Europe 2020 target of 20% increase in energy efficiency no additional legislation at the EU level shall be needed. The current task is

to assure effective implementation of the existing framework since most of the EU Member States still have to fully comply with the Energy Efficiency Directive. Dr. Fabio Genoese from the Brussels-based think tank CEPS provided a detailed overview of the impact of energy costs on energy intensive industries.

The SESEC partners presented ready-to-use project's results, such as special software tools for companies to start rethinking their energy spending, use of buildings, heating system, ventilation and electricity.

Partners reported that under SESEC some fifty companies across Europe have already been audited and/or supported to launch energy efficiency measures. Insights on business cases in Italy, Bulgaria, Romania and Portugal as well as % of the achieved cost-reductions were shown. The 400 participants in training meetings and the free of charge access via website to

the SESEC self-assessment tools in eight European languages were remarked.

The new project SET (Save Energy in Textile SMEs) was also presented. SET will build on up the SESEC legacy, addressing energy saving measures for the textile manufacturers. SET will seek to support over 150 European companies until 2016. Both projects are co-founded by the EU Intelligent Energy Europe programme and constitute the core elements of the Energy Made-to-Measure campaign. The latter brings resources and high-quality information on energy efficiency measures to European textile and clothing companies.

(*) SESEC – Sustainable Energy Saving for the European Clothing Industry, find out more: www.euratex.eu/sesec

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DEGROTEBEDTEST.BE DOET VLAMINGEN NADENKEN OVER HUN SLAAPCOMFORT

Te Brussel werd op 12 september 2014 DeGroteBedtest.be voor het eerst gelanceerd, een handige digitale vragenlijst die de Vlamingen uitdaagt om na te gaan hoe het gesteld is met hun slaapcomfort.

De praktijk wijst namelijk uit dat veel mensen geen idee hebben van de leeftijd van hun matras of bedbodem. Nochtans heeft wetenschappelijk onderzoek uitgewezen dat je, in het belang van een gezonde nachtrust, je matras en bedbodem best om de tien jaar vervangt. Een nieuw bed kan namelijk tot 42 minuten extranachtrust geven.

DeGroteBedtest.be, een initiatief van De Slaapraad

Al achttien jaar verspreidt De Slaapraad de boodschap "vervang om de tien jaar je matras en bedbodem". Intussen is deze boodschap door de meerderheid van de Vlamingen bekend. Alleen leert de praktijk dat vele Vlamingen niet weten hoe oud hun matras en/of bedbodem is, en als ze het al weten, daarom niet noodzakelijk na tien jaar de stap zetten om deze te vervangen.

Daarom vindt De Slaapraad het hoogstnodig om de Vlamingen uit te dagen om zelf te checken hoe het gesteld is met hun bed, aan de hand van een interactieve test.

Onderzoek van slaapexpert dr. Idzikowski heeft uitgewezen dat de aanschaf van een nieuw bed tot 42 minuten extraslaap kan opleveren.

Bovendien is het om hygiënische en ergonomische redenen aangewezen om je matras en bedbodem na tien jaar te vervangen.

Katja De Vos, communicatieverantwoordelijke van De Slaapraad, geeft toelichting bij DeGroteBedtest.be: "Uit wetenschappelijke studies is effectief gebleken dat er wel degelijk een rechtstreeks verband is tussen de kwaliteit van je slaapsysteem en de kwaliteit van je slaap. Daarom willen wij de consument op een neutrale manier bewustmaken van het belang van een goede matras, bedbodem en hoofdkussen. Een interactieve online-bedtest die de consument gemakkelijk zelf kan uitvoeren, leek ons hiertoe dan ook de meest geschikte manier."

Test zelf je bed in ruil voor professioneel advies op maat

De online-enquête kan worden ingevuld via www.degrotebedtest.be.

Je beantwoordt een aantal digitale vragen over je manier van slapen en je bedsysteem. Het eindresultaat is een kwalitatieve evaluatie op jouw maat.

Indien nodig of gewenst, kan je met het eindresultaat voor advies langsgaan bij een erkend lid van De Slaapraad uit jouw regio.

De deelnemende handelaars zijn herkenbaar aan de hand van de sticker "Erkend lid van De Slaapraad".

Bovendien kan je na het invullen van de bedtest deelnemen aan een wedstrijd waarbij je voor 5000 euro aan slaapcomfort kan winnen.

De wedstrijd loopt vanaf 15 september tot en met 15 november 2014. Ook na het aflopen van de wedstrijd blijft de bedtest online en kan je nog steeds de vragen invullen om een persoonlijke evaluatie van je slaapcomfort te krijgen.

DeGroteBedtest.be is een initiatief van:



De Slaapraad vzw is een neutraal orgaan dat in 1996 werd opgericht op initiatief van fabrikanten en handelaars uit de slaapcomfortsector met als doel het grote publiek bewust te maken van het belang van een goede en gezonde nachtrust.

Voor meer informatie over DeGroteBedtest.be en/of over De Slaapraad:
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NEWS FROM TEXTILES INTELLIGENCE

1. Worldwide output of digitally printed textiles is set for strong growth

Worldwide output of digitally printed textiles is growing at an annual rate of 25%, according to a report in Issue No 170 of Textile Outlook International from the global business information company Textiles Intelligence.

Digital textile printing has a number of important advantages over screen printing. For example, it offers greater freedom of creativity and flexibility in design and is more cost efficient for short print runs. Also, it is more environmentally friendly, it enables physical inventory levels to be reduced, it requires less capital investment and it has a smaller production footprint. Furthermore, the adoption of digital textile printing can help manufacturers to adapt more quickly to changes in global sourcing trends and consumer demand.

At present, digitally printed textiles account for just 2% of total printed textile production worldwide. And, despite rapid growth, they will still account for only a 5% share by 2017. However, there are many opportunities which provide the digital textile printing industry with scope for future expansion. In particular, whereas the production of digitally printed textiles is currently weighted heavily towards developing countries, there is likely to be an increase in production in European countries in the future.

The increase in production in European countries will be driven by the fact that some European textile companies are looking to re-shore a proportion of their production operations from developing countries to European countries in order to satisfy local tastes, facilitate quick response (QR) manufacturing, release a greater number of

collections each year and hence serve the fast fashion market better.

There are also opportunities for expansion in the luxury apparel segment as digital textile printing enables retailers of luxury apparel to produce small quantities of high quality, limited edition pieces cost efficiently.

Further scope for expansion lies in the area of mass customisation, whereby a consumer is able to personalise a product by choosing a design on a dedicated web page in a retailer's online store for subsequent production by a digital textile printer.

Digital textile printing will also become more important in the home textiles sector as consumers increasingly view home textile products as consumables, and update their home furnishings and bedding more frequently.

Among non-consumer applications, there are major opportunities for the digital textile printing market in soft signage. This field is ideally suited to digital printing as customers in this sector usually order in small quantities and digital textile printing is capable of producing short print runs cost effectively.

Soft signage made from digitally printed polyester fabric has some practical advantages over traditional hard signage and PVC signage. In particular, it is stable in hot environments whereas the performance of hard signage and PVC signage can be adversely affected by hot weather and variable humidity. As such, the use of digitally printed polyester fabric provides manufacturers of signage with scope for expanding their businesses to countries with warm climates in which hard signage and PVC signage would not be suitable.

However, the widespread adoption of digital textile printing as a tool for

commercial-scale print production will ultimately depend on the ability of machinery manufacturers to develop digital textile printers with production speeds which rival those of conventional textile printing machinery.

2. A strong future for carbon, glass, synthetic and natural fibre textiles in composites

Over the past ten years, investments have been driven by the aerospace industry with a focus on reducing the weight of aircraft. Now, the emphasis is on reducing the weight of passenger cars and other vehicles. Parts for vehicles are being made from composites reinforced with fibres and fabrics made from various materials, including carbon, glass and polyester, as well as natural fibres.

In 2013 the output of the composites industry is estimated to have been worth 95 bn Euros (US\$126 bn) at the finished parts stage and growth of 9-10% per annum is projected up to 2020 and beyond.

A report, published in issue 96 of Technical Textile Markets, highlights important developments in this fast expanding field. It includes:

- Introduction
- Investments in the composites industry in Europe and the USA
- Carbon fibres and fabrics for composites
- Glass fibres and fabrics for composites
- Synthetic fibres and fabrics for composites
- Natural fibres and fabrics for composites

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VDMA TEXTILE MACHINERY: GRADUATE ENGINEERS STAND OUT AND TAKE OFF

In connection with its members' meeting in Lindau on Lake Constance the VDMA Textile Machinery Association has honoured seven successful young engineers. Every year the Walter Reiners-Stiftung (foundation) of the German textile machinery industry launches several promotion and creativity prizes for young engineers. This time, there has been a particular highlight : as a recognition for outstanding dissertations, master thesis and project studies the president of the foundation and chairman of the Lindauer DORNIER GmbH Board of Management, Peter D. Dornier, has invited the laureates to a Zeppelin flight over the lake Constance region.

Issues of the future presented in a high-tech backdrop

The award ceremony took place at the Dornier Aviation & Aerospace Museum in Friedrichshafen. This museum, which is an inspiring celebration of the pioneer spirit and makes it possible to experience highest technical performance, was the ideal framework to honour the forward-looking studies of the young academics. In his celebratory speech Peter D. Dornier characterized the textile machinery industry as real "high-tech incubator", which contributes in a decisive manner to meet the challenges of automotive

engineering and medical technology and provides convincing answers exceeding the classical fields of application such as apparel and home textiles.

Award winners of 2014

The promotion prize in the dissertation category endowed with 5000 Euros has been awarded to Dr. Thorsten Heinze of TU Chemnitz (Technical University). He undertook further research on polyester fibres as alternative to braided metallic ropes used for conveyor technology. Fields of application are elevators, cranes and shaft hoisting systems.

Due to the excellent quality of two master theses this year, the promotion prizes in this category, each endowed with 3000 Euros, have been given to Mr. Moniruddoza Ashir of TU Dresden (Technical University) and Mr. Markus Appellmann of Hochschule Mannheim (University of Applied Sciences). The study presented by Mr. Ashir deals with hybrid woven structures for lightweight applications, which can be used from automotive engineering to sports equipment like tennis rackets or golf clubs. The master thesis of Mr. Appellmann with a very practical approach is devoted to the development of a bench for testing the loop formation on warp knitting machines.

A team of students of RWTH Aachen (Technical University) has been honoured with the creativity award of 2000 Euros. Dominik Granich, Gerrit Hartmann, Andreas Schulz und Philipp Schleier presented a concept for development of a braiding machine for stents. These are applied in medicine for treating vascular diseases.

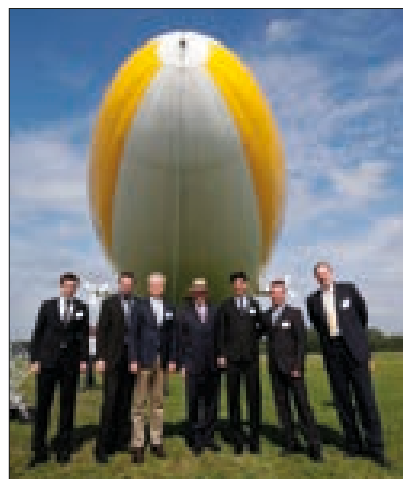


Photo: ready for take-off : Markus Appellmann, Roland Hampel, Dr. Thorsten Heinze, Peter D. Dornier, Philipp Schleier, Stefan Kroß (f.l.t.r.)

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MYMACHINE VLAANDEREN: 400 KLEINE UITVINDERS AAN DE SLAG

MyMachine Vlaanderen, een initiatief van MyMachine vzw in samenwerking met Vlajo, maakt het mogelijk voor kleine (en grote) kinderen om hun eigen droommachine te ontwikkelen. Kinderen uit het lager onderwijs bedenken een 'machine' (IDEE) die dan verder wordt uitgewerkt door hogeschoolstudenten (ONTWERP) om ten slotte te worden gerealiseerd door leerlingen uit het technisch onderwijs (MACHINE). Gedurende het hele traject kunnen kinderen en studenten een beroep doen op de expertise en ondersteuning van diverse bedrijven en organisaties om zo de knapste machines te realiseren.

Meer dan 600 kinderen en studenten uit 22 scholen gaan straks samen aan de slag om ingenieuze droommachines

en een nieuwe MyMachine-computer-game te realiseren.

Meer dan 400 kinderen kruipen in de huid van Leonardo Da Vinci

Tussen 22 en 24 oktober kruipen meer dan 400 kinderen uit 21 lagere schoolklassen, verspreid over Vlaanderen, in de huid van Leonardo da Vinci. Ze bedenken, tekenen en beschrijven hun eigen 'droommachine'. Ze worden hierbij geholpen door studenten van de Howest Bacheloropleiding Industrieel productontwerpen (2^{de} jaar).

Sommigen worden ook vergezeld van de leerlingen van de technische secundaire school waarmee ze straks gaan samenwerken.

De studenten moeten het creatiefste in de kinderen naar boven halen, waarna de klas de top 3 van mooiste of mafste machines kiest. Eén daarvan wordt verder uitgewerkt door de ontwerpstudenten. Ten slotte bouwen leerlingen van het technisch secundair onderwijs deze machines. Eind juni wordt het hele proces van kindertekening tot tastbare machine tentoongesteld.

De Billenkletsmachine, het Zweefboard, de Weermaakmachine, het Frietkanon of de Spokenverjager, het zijn slechts enkele van de straffe uitvindingen die dankzij MyMachine in het verleden werden gerealiseerd.

Bovendien gaat voor de derde keer een studententeam van de Howest bacheloropleiding Digital

Arts & Entertainment (www.digitalartsandentertainment.be) creatief aan de slag gaat met de wildste kinderideeën. Het eindresultaat van deze 'technical artists' is een 3D-computergame. Zo leren kinderen ook de onbegrensde wereld van het digitaal ontwerpen kennen.

Bekroningen

MyMachine werd al meermaals bekroond, zowel nationaal als internationaal:

- Laureaat United Nations World Summit Award 2009 voor Creativiteit en E-content (voor koppeling project en website www.mymachine.be ontwikkeld i.s.m. Indie Group)
- Winnaar van de Design Management Europe Award 2009 in de categorie non-profit voor het integreren van 'Design' als key-element in zowel strategie, projectmanagement en projectproces

- Belgische nominatie voor de "Europese Ondernemingsprijzen 2011" van de Europese Commissie, uitgereikt door de Belgische overheid (Federale Overheid Dienst Economie)
- Brugproject Onderwijs-Economie 2008 en 2011 door de Vlaamse Overheid via Agentschap Ondernemen
- Winnaar in de categorie hoger onderwijs van de prijs van de Meest Ondernemende Hogeschool 2009 (Howest), uitgereikt door Unizo, Flanders DC, Expertisecentrum Ervaringsgericht Onderwijs, Cera Foundation en de Vlaamse Overheid
- West-Vlaams streekproject door VOKA West-Vlaanderen 2009 en 2010
- West-Vlaamse Ambassadeur 'Ondernemen' 2010 door de Provincie West-Vlaanderen

Beleef MyMachine online

Vanaf november kunnen niet alleen kinderen, leerlingen en studenten, maar ook de ouders en andere geïnteresseerden het hele proces actief volgen via www.mymachinevlaanderen.be

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MyMachine is een initiatief van Howest, de hogeschool West-Vlaanderen, Intercommunale Leiedal en het Streekfonds West-Vlaanderen

LECTRA WINS EY'S 2014 INTERNATIONAL COMPANY OF THE YEAR AWARD

EY awarded this prestigious prize on October 13 to Daniel Harari in recognition of the vitality and success of Lectra's strategy internationally



Paris, October 16, 2014 – Lectra, the world leader in integrated technology solutions dedicated to industries using soft materials—fabrics, leather, technical textiles and composite materials—is pleased to announce that it has won the 2014 International Company of the Year Award for France after receiving the same distinction on September 24 for the country's southwest region.

EY, one of the world leaders in advisory, assurance, tax and transaction services, started its Entrepreneur of the Year awards program in 1986 in the United States. The program now spans more than 58 countries, and this was the 22nd year the prize was awarded in France.

"This International Company of the Year Award reflects the broad scope of Lectra, which serves its customers in more than 100 countries and achieves 92% of its revenues overseas," said Daniel Harari, Lectra CEO. "We are a transnational company with 32 subsidiaries abroad and more than 1,400 employees representing 50 different nationalities."

A 'glocal' company, Lectra has succeeded internationally and, at the same time, maintained strong local roots. The company has preserved

its French DNA with its headquarters based in Paris and its production and R&D facilities located in Cestas, southwest France—a French touch that Lectra is very proud of. "We have been successful globally because we made the bold choice to continue our production in France, a guarantee of *savoir-faire* and quality, while others relocated to China. We preferred to reinforce the close cooperation between our teams of experts and researchers, a complete reengineering of our solutions and an upscale positioning to continually add value for our customers," explained Daniel Harari.

Lectra's strength also lies in the composition of its local teams. "Apart from some very rare exceptions, our subsidiary managing directors are local hires, which is not the case in all multinational companies. This is very important because it allows us to create a real proximity with our customers, and therefore a full understanding of their operational needs," added Daniel Harari.

These choices are a winning strategy as Lectra now attracts an increasing number of customers from high-growth markets such as China, Brazil, South Korea and United States. "Over

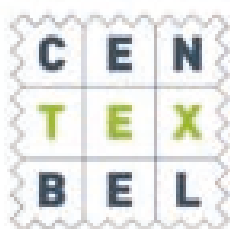
the years, Lectra has gained market share and today holds a very strong position with renowned customers in all its business sectors. In the fashion market for example, Lectra serves almost 100% of luxury brands," said Daniel Harari.

Daniel Harari dedicated the International Company of the Year Award to Lectra's teams. "This prize belongs to all our collaborators. Multiculturalism is a gateway to the world and a wonderful asset on a daily basis. We never stop learning from each other," he said.

About Lectra

Lectra is the world leader in integrated technology solutions that automate, streamline and accelerate product design, development and manufacturing processes for industries using soft materials. Lectra develops the most advanced specialized software and cutting systems and provides associated services to a broad array of markets including fashion (apparel, accessories, footwear), automotive (car seats and interiors, airbags), furniture, as well as a wide variety of other market sectors, such as aeronautical and marine industries, wind power and personal protective equipment. Lectra serves 23,000 customers in more than 100 countries with 1,400 employees and \$270 million in 2013 revenues. The company is listed on Euronext.

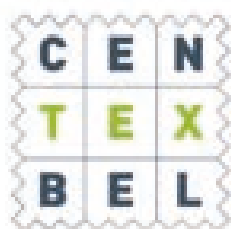
For more information, please visit www.lectra.com



Centexbel-VKC INFOSESSIES Najaar 2014

- 18/09 Seminarie Massacustomisatie
- 22/09 Studienamiddag Opschuimen van kunststoffen
- 23/09 Workshop Beschermende kleding (in Nederland)
- 25/09 Actuele energie topics (VME)
- 25/09 Horizonverkenning Industrieel textiel
- 8/10 Workshop Normering bij Additive Manufacturing
- 09/10 Ontbijtsessie Vezel- en garengineering
- 16 & 17/10 2nd FR Conference: Fire-safe Textiles and Plastics
- 04/11 SUSTECH - Duurzame technologiesessie TEXTIEL met bedrijfsbezoek
- 06/11 Inleiding QRM, Quick Response Manufacturing
- 13/11 Studienamiddag Materiaalkostreductie in kunststoffen
- 18/11 Labobezoek Textiel & kunststof binnenstebuiten
- 18/11 SUSTECH - Duurzame technologiesessie HOUT met bezoek aan Gyproc
- 20/11 Sessie Opslag gevaarlijke producten in het kader van CLP (VME)
- 25/11 SUSTECH - Duurzame technologiesessie MEUBEL met bedrijfsbezoek
- 27/11 Horizonverkenning Composieten
- 01/12 Workshop Ecologie en levensduur bij Additive Manufacturing
- 02/12 ZEETEX - Textielontwikkelingen voor mariene en maritieme ontwikkelingen
- 08/12 Studienamiddag Waterproblematiek in de textielindustrie

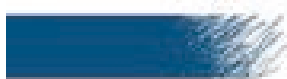
meer info en inschrijvingen: www.centexbel.be/nl/agenda



Centexbel-VKC OPLEIDINGEN Najaar 2014

- 3/09 Introductie in de kunststoffen
- 17 & 24/09 Spuitgieten Alfa (starters)
- 22/09 Verbinden van kunststoffen; lijmen als alternatief
- 30/09 Kennismaking met Rubbers
- 02/10 Praktijgerichte basiscursus Compounderen
- 09/10 Basisopleiding Grondstoffen
- 20/10 Basiscursus Profielextrusie
- 23 & 30/10 Spuitgieten Beta (instellers)
6 & 13/11
- 4/11 Basiscursus Folie-extrusie
- 18/11 Basiscursus Thermovormen
- 25/11 Wegwijs in basisanalyses van kunststoffen

meer info en inschrijvingen: www.centexbel.be/nl/agenda



NIEUWS UIT DE VAKGROEP TEXTIELKUNDE

PhDs in Material Science at the Department of Textiles



Lucy Ciera defended her PhD in Material Science at Ghent University on 11 July 2014 on the topic

Functionalizing Textile Materials with Mosquito Repellents in Melt Extrusion and Electrospinning

Despite the enormous efforts in controlling mosquito borne diseases, they still remain a major risk to public health. Their persistence can be attributed to the resistance of mosquitoes to the current synthetic repellents along with environmental and health concerns and the short protection time of the repellents. Moreover, repellents are generally impregnated on the surface of textiles and as a consequence their durability and resistance to use and care conditions is questionable. Thus, there is a scientific as well as a technological gap in developing safer mosquito repellent textiles with an efficacy that can last the lifetime of the product. This gap can only be filled by identifying effective and safe repellents which can be permanently incorporated into textiles. Moreover, the produced novel textile should have a slow release mechanism to ensure a long protection time without re-treatment.

In this PhD research, textile materials were functionalized with repellents such as permethrin, PMD, Chili and Catnip oil during fibre production i.e. in melt extrusion and electrospinning. The resulting fibres significantly reduced the number of mosquito landings and incorporating the repellents in fibres did not significantly affect the material properties.

Therefore, the research work sets a firm basis upon which large-scale production of novel mosquito repellent textiles can be developed. This can lead to great advances not only in the textile industry but also to the public health sector.



Lina Rambašek defended her PhD in Material Science at Ghent University on 15 September 2014

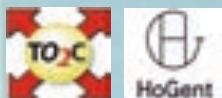
Textronics – Definition, Development and Characterisation of Fibrous Field Effect Transistors

The field of smart textiles is multidisciplinary in all its facets. Textiles and electronics but also material science, chemistry and physics gain in importance. Many concepts for integrating an electronic function into textiles have been developed but not all are at the same technical level. To allow comparison of e-textile technologies, this dissertation outlines the existing integration levels, resulting in a systematic approach for categorizing e-textiles up to the category of textronics.

More specifically, textronics are textile substrates with added-on or built-in electronic functions. An example is an organic field effect transistor built on a polyester filament, which is the topic of the experimental part of the dissertation. The transistor architecture is applied onto the filament using thin-film technology. Firstly, the filament is coated with copper by electroless deposition, generating the gate layer. The polyimide dielectric layer and the semi-conductor TIPS-pentacene layer are applied by dip-coating. Finally, the source and drain electrodes are deposited by drop-casting or ink-jet printing. The experimental challenge lies in applying materials from planar electronics onto a cylindrical substrate and in optimizing each layer by using manufacturing processes suitable for the textile industry.

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DigiFun: Digital micro-disposal of functionalities on textiles (clothing, interior, protective textiles)



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The main project objective is to develop a generic digital technology for micro-disposal of functional fluids on textile substrates intended for clothing, including sportswear and workwear, protective and interior textiles. The main focus is on the development of novel UV-curable (100%) *superhydrophobic inks* for protective (water-barrier) end-uses and a new set of non-yellowing *invisible Fluo-inkjet inks*. The printed image is totally invisible at daylight but it becomes brightly visible when shining with a black light. These new inks can be applied in all kinds of sustainable digital workflows, for instance for the purpose of tracking & tracing, anti-counterfeiting, etc. Interesting is the never ending amount of images and text that can be digitally printed, and the relative simplicity of the technique.

The new functional inkjet inks are designed and engineered to be jettable using high-speed piezo print heads (Xaar, Dimatex, Seiko...) and to meet the desired functional requirements during the long life cycle of the end products. *The digital micro-disposal approach will have the ability of full coverage or exact localization and patterning of the aimed functionalities.*

The project aims also the development of a modular printing system, which could be scaled-up on industrial level.

The digital technology is seen as a straight replacement for conventional padding or coating processes. Its unique characteristics enable it to fit into different supply chains, become integrated with other processes and address market needs previously unfulfilled. This approach fits perfectly in the Euratex Flagship initiative and roadmap to a resource efficient Europe, boosting and enhancing economic performance and competitiveness while reducing use of resources (water, energy, chemicals) or turning major wet textile in to dry, energy-efficient processes.



New Functional UV-curable DP-inks

NEW FUNCTIONAL INKJET INKS:

1. Superhydrophobic inks

- Barrier properties against liquids/water

2. Invisible Fluo-ink

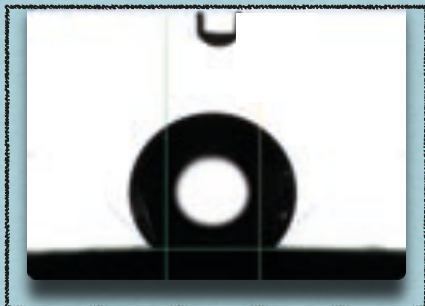
- Anticounterfeiting, tracking, tracing

Both inks will be UV-curable based inks (100%) consisting of:

- Monomers as reactive diluents
- Active ingredients
- Selected photo-initiator system
- Other processing additives...

CUSTOMIZED FUNCTIONAL INKS:

- Tailor-made and fitted for high speed print heads (Xaar, Seiko, Dimatex...)
- Instant, in-line UV-curing using air-cooled LED-systems (wavelength ca. 395 nm)
- No need for special pre- and posttreatment of textile
- Less dependant of textile material, inclusive heat-sensitive materials
- Well selected ingredients: less harmful for skin
- Because the UV-ink does not contain any volatile solvent, it avoids environmental problems of VOCs, which are increasingly subject to legal restrictions.



Superhydrophobic inkjet inks - contact angle $\geq 140^\circ$

Durable barrier performance against liquids/water



Invisible fluo inkjet inks for

anti-counterfeiting, tracking and tracing purposes



New functional inkjet inks are curable with air-cooled LED-systems, operating at 395 nm.

Two LED's are mounted on both sides of the print head and moving along with the print head



SILICONE ADDITIVES MAKE THE DIFFERENCE

CHT R. Beitlich GmbH has expanded its assortment of special silicone products with a range of additives for flexo and rotogravure inks as well as varnishes. With our substrate wetting agents, surface additives and defoaming systems based on organo-modified silicones, flawless printing results for maximum quality demands can be achieved. CHT silicone additives offer an excellent printing performance, high efficiency and best reliability even with the lowest application amounts and on difficult substrate qualities. "Create unforgettable impressions" with **HANSA** silicones.

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PROGRESS REPORT 2012

The chairman's editorial

Techtera ranked in the top 20 French innovation clusters, as «very effective»: the results of the national assessment of the clusters, made for the State by a consortium of French audit companies, were given at the beginning of summer 2012. Of course, these results are a great success for us. In their assessment report on Techtera, the auditors point out three of the cluster's success factors; namely, the ongoing cooperation with Japan, the ratification of the innovation processes through ISO 9001 certification, the role of the Innovation Workshops in the emergence of R&D projects of cluster members.

Relations with Japan are among the oldest that the cluster has formed internationally. The first meetings with the Japan Chemical Fibers Association began in 2007 and have intensified year by year. At the end of 2012, Techtera joined the Franco-Japanese textile work group set up by the French and Japanese governments to develop technology partnerships and strengthen trade ties between the two countries. Work will continue in 2013.

The Innovation Workshops are at the heart of the services offered by Techtera to industrialists and researchers;

they are the foundation on which are based the innovative efforts of the firms and laboratories.

Certification ensures transparency, traceability and process quality. In our world of extreme competition between economic groups, it is also the guarantee of confidentiality. It is in fact the centre of the system.

Detect paths for innovation and follow up until projects are completed, find funding, put future partners into contact, communicate and support international development; Techtera's services for its members are part of the dual mission of French innovation clusters.

From 2005 to 2012, their role was that of «project maker», concentrated on the production of R&D projects. As from 2013, and the 2013-2018 strategic roadmap that all the clusters sign up to with the funders, they also become «product makers». They strengthen and support the transition from R&D to the production-marketing-selling of innovative products - creators of wealth through competitiveness.

Louis Vovelle

Who are we?

In France, an innovation cluster unites firms, research laboratories, technical centres, universities and colleges, for a particular area and industry, to develop collaboration and multi-partner R&D projects, with the aim of increasing company competitiveness.

Established in 2005, Techtera is THE innovation cluster for textiles and flexible materials in the Rhône-Alpes Region. Techtera has 119 members (2012 figures), 79% of which are industrial, and 76% of the cluster's members are located in the Rhône-Alpes.

Our actions are:

- supporting firms and research organisations in their

We keep on innovation

In Innovation Workshops

(Open to members and non-members)

Organised for researchers and industrialists, they are the trademark of Techtera. The principle is: one half or full day on a theme with speakers who are experts on subjects leading to innovation. The aim: help innovative ventures to emerge; these are then worked at in follow-up groups dedicated to mounting projects. Each Workshop gives birth to one or two R&D projects.

In 2012, three Innovation Workshops were organised on the following topics:

- skills of the Ecoles des Mines d'Albi, Alès, Paris and Saint-Etienne, in the field of **textile composites**.
- A revolutionary technology for the surface treatment of materials: **chromatogeny**.
- **Upgrading the carbon in composites**.

A **follow-up group** is organised after each Innovation Workshop. Its work is coordinated by the cluster, which continues the thought initiated with the aim of establishing a joint R&D project.

In 2012, four follow-up groups were active, working on:

- **The upgrading of textiles at the end of their service life**
- **Polysensoriality**
- **Carbon composites**
- **Chromatogeny**



innovation efforts: monitoring, Innovation Workshops, «project» work groups, analysis and approval of R&D projects, help with the search for funding, support for SMEs in setting up European projects, etc.

- Encouraging contacts and the technology transfer: Cart'tex, the map of rare textile skills; meetings between firms and customers.
- Communication to promote the vitality and innovation of the cluster members and the industry as a whole
- Helping and boosting the international development of the firms.



Examples of R&D projects in 2012:

Fifteen R&D projects were funded and launched in 2012; **70 companies involved**, including **31 SMEs**; and **29 research laboratories and/or technical centres**

Total budget for R&D projects: **€ 44.6m**

Amount of funding: **€ 18.8m** (2012 figures)

Among these:

Three projects funded by the European Union:

• ECOLASTANE

The aim: develop biosourced polyester and polyurethane, using renewable resources chosen from waste or unused by-products. The fibres obtained replace the current non-biosourced fibres with exactly the same properties. There are nine partners from four different countries, including three laboratories, three clusters and three firms; one of the firms is a member of Techtera. Techtera is one of the project partners.

• TEX SHIELD

The aim: develop hydrophobic processes to replace current processes based on the fluorinated resins using the cleaner sol-gel chemistry. Led by the British textile cluster NWTextnet, this project brings together twelve partners, four German, Bulgarian and Turkish firms and three famous research laboratories: TWI (Cambridge), Ghent University and INSA Lyon.

- **TEXTILE 2020** associates eight European textile clusters - including Techtera and UP-tex from France - for grouped international development action to benefit their members in the major export countries targeted by the European Union.

Seven projects financed by FUI, the government fund dedicated to French innovation clusters:

• BALLOO (light aircraft fuel tank, crashworthy and ballistic-impact resistant)

The aim: develop a soft fuel tank based on 3D textile preforms for aircraft (civil and military aircraft, helicopters, gliders, etc). This will be more effective, in terms of standards, in case of crashes or ballistic impact.

Twelve partners - budget: **€ 3.5m**

• BATIR

The aim: develop industrial-scale innovative technology for cold-plasma surface treatment at atmospheric pressure to increase the functional performance of flexible materials and expand the range of their potential applications.

Eight partners - budget: **€ 2m**

• BIONICOMP

The aim: improve the performance of composites reinforced with natural fibre and thermosetting elastomer matrices. This uses a grafting technique activated by ionisation to optimise the fibre/matrix bond. The overall objective of the project is to enable biosourced composites - based on flax for example - to compete with the performance of «traditional» glass fibre composites, offering materials that are lighter in weight with less impact on the environment.

Seven partners - budget: **€ 3.2m**

• FOMOTEX (an innovative dry-impregnation process to endow coatings, textile underlayers and foam with improved barrier properties)

The aim: develop non-flammable latex-free textile underlayers with multifunctional characteristics and comply with current regulations. The manufacturing process used is dry-powder impregnation (no water or solvents), giving a significant reduction in water and power consumption.

Six partners - budget: **€ 2m**

• HUMEVERE (functional vegetable oils for green formulation of polymers)

The aim: substitute vegetable oil for fossil oils in the formulation of polymeric materials while retaining their technical and economic performance.

Eight partners - budget: **€ 3.7m**

• MultiMaFs (multifunctional materials for placing dry fibre)

The aim: develop materials that improve the electrical conductivity and mechanical strength of carbon-fibre-based composites used in aircraft. This is to increase their resistance to harmful electrical effects (lightning, current load, electromagnetic fields).

Eight partners - budget: **€ 2.3m**

• REPTILES (fitting waterproof liners in drinking-water pipes)

The aim: develop a robotic method for rehabilitating buried water mains from the interior, using a new type of pre-impregnated textile reinforcement with a thermoplastic matrix.

Seven partners - budget: **€ 6m**

One PSPC project (structural R&D project for the innovation clusters)

• SINFONI

The aim: organise the French technical plant-fibre sector (flax, hemp), bringing together industrialists and academics with strong complementary skills to the entire value chain, and improve the performance of plant fibres and reinforcements. Three areas are targeted: insulation, concrete and composites.

Twenty partners - budget: **€ 14.5m**

One regional ITC project (Technological Innovation for Clusters)

• SENSOCIM

The aim: establish a bioclimatic technology platform for assessing the hygrothermal comfort provided by textiles and other materials. Led by: IFTH (French Institute of Textiles and Clothing).

Six partners - budget: **€ 350,000**

A first: the Cart'tex map of textile skills

Right now, the Cart'tex map of rare textile skills lists about 120 skills and very specific textile technologies, with 17 firms audited since the project started in 2011. This high-tech expertise comes from the textile industry and each firm listed. It could answer the technical requirements not only of textile firms, but all sectors of activity. Cart'tex is a tool for creating business opportunities, technology transfer to other textile industries and the development of innovation. Dedicated software has been developed. A web portal will be accessible to all potential users in France and abroad. Launch: 2013.

The “Extras” provided by the cluster:

- Engineers specialised in textile and chemical projects, ability to propose and advise.
- Of those coming to the Innovation Workshops, between 70% and 90% are from industry.
- Cart'tex is a first: the textile map presents technologies that have not been identified and listed so far. It meets just as precisely a request from a textile manufacturer as a request from an industry in a different sector of activity in search of technological solutions for a product or process.



We support the development of our network

In France and abroad:

The cluster defines and implements an annual action plan to increase its outreach, promote innovations developed by its members, and highlight the initiatives, vitality and performance of the firms and the whole textile industry.

In 2012, Techtera guided and implemented:

- participation in prestigious international shows: JEC Paris and the Americas (composites), Pollutec Lyon, etc, with joint stands or groups of firms and organisational-logistical-communication services.
- Joint missions of technology and business partnerships for export, in collaboration with Ubifrance and a programme individually designed for the participants.
- Hosting foreign delegations and organising B-to-B meetings between companies and the guest laboratories and members of Techtera, in response to the needs of each participant.

- Registration for scientific conferences about upgrading and R&D projects.
- Establishing contacts between firms and research organisations members of partner clusters.
- A monthly newsletter, «Spinning Info», in three languages (French, English, Japanese) sent to over 2500 recipients.
- Ten press releases about R&D projects funded, and news about the cluster.
- One press kit of portraits of firms and research laboratories for the international press.

The Techtera website is available in four languages: French, English, German, Japanese.

Techtera coordinates the International Development Plan of the Rhône-Alpes textile industry, implemented by the cluster and its partner «Espace Textile», organisation promoting the industry.

Some examples of action in 2012:

- Techtera accompanied five firms to the JEC Americas (Boston), in association with the innovation clusters Axelera and Plastipolis under the banner «Composites Rhône-Alpes». There was a preview of the innovations presented at JEC and IFAI, the textile show organised in parallel to the JEC. It was distributed to members on request.
- Techtera invited and hosted a prestigious delegation of Japanese firms, universities and institutions: eleven participants (Japan Chemical Fibers Association, universities, clusters, SMEs) selected by the cluster for a programme of visits and meetings, including B-to-B appointments with members.
- Ten companies were signed up for the textile technology partnership mission, organised with the Up-Tex innovation cluster, in Korea and Taiwan. Of these ten participants, six were members of Techtera (four major groups, two SMEs).
- A poster of the 51st Man Made Fibers Congress in Dornbirn (Austria), a conference on the theme: «Intelligent and insightful textiles».
- Techtera participated in the scientific workshop organised by Tohoku University (Japan), the International Laboratory ElyT Lab, the Science Council of Japan and UNESCO, in Sendai. The work theme: «Innovative method for dissipating the energy of tsunamis and limiting their impact».

More specifically, in Europe:

EUROMATIÈRE is a programme to help SMEs set up European R&D projects.

Launched in 2010, it brings together three innovation clusters: Axelera, Plastipolis, Techtera (leader) and is funded by the DGCIS (general directorate for innovation, industry and services).

The programme provides French SMEs with:

- **workshops for awareness** about European calls for projects.
Two Europe Workshops were held in 2012 on:
- call for projects from the European Eco-Innovation Commission.
- Presentation of offers and the search for partnerships.

• Individual support for firms.

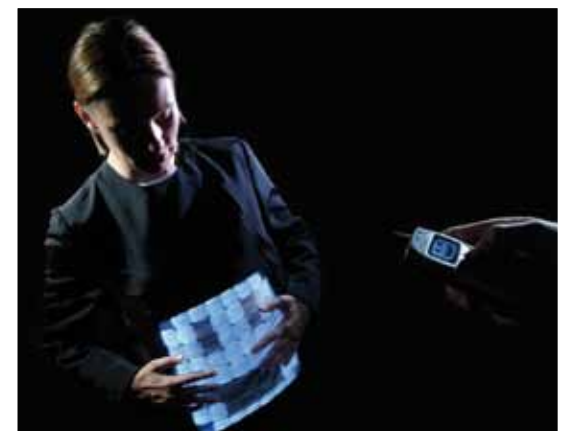
In 2012, **one enterprise** received an individual diagnosis, through Euromatière. Twenty-three SMEs have been diagnosed since the launch of the project. Six SMEs have been funded through European R&D projects in two years, for a total amount of € 1.2m.



The “Extras” provided by the cluster:

Techtera is one of eight partner clusters of the European Textile 2020 programme. The purpose of this group, representing more than 860 technical textile firms, research laboratories and technical centres located in six countries (Germany, Spain, France, Italy, Czech Republic, United Kingdom): to speak with one voice on the world stage, gain visibility and develop new markets and business and/or technology partnerships.

Textile 2020 has a schedule of actions (shows, business trips, workshops, etc) in five target countries of the programme: Japan, South Korea, Canada, Brazil and Tunisia.





2012: facts and figures

Techtera among the top 20 French innovation clusters for high performance

A very successful assessment for Techtera, at the end of the study carried out in the first half of 2012 by assessors of the BearingPoint-Erdyn-Technopolis ITD consortium, mandated by the government for the second phase in the national assessment of the innovation cluster policy. Techtera ranks in the top tier of the 20 French clusters rated and gets «very effective» for the action taken between 2008 and 2011, the period covered by the assessment.

The assessment report highlights the good practices and outstanding action of the cluster.

Three specific issues were identified:

- the ongoing partnership with Japan.
- Ratification of procedures and ISO 9001 certification - gained in 2008 renewed in 2011 for three years.
- The procedure for creating joint R&D projects and, in particular, the cluster's Innovation Workshops available for manufacturers and researchers.

Louis Vovelle, vice-chairman Innovation and Strategy of Bluestar Silicones, elected chairman of Techtera

On June 21, 2012, the Techtera board of directors elected Louis Vovelle, vice-chairman Innovation and Strategy of Bluestar Silicones, a world-leading manufacturer of silicones, as its chairman. A graduate from the Ecole Nationale Supérieure de Chimie de Paris (ENSCP), Louis Vovelle, 54, has spent his entire career in the chemical industry, in Rhône-Poulenc and Rhodia, before joining Bluestar Silicones in 2007.

MISTRAL: the innovation hub now has a «Textiles and Uses» laboratory

MISTRAL, the textiles and flexible materials technology hub, continued to develop in Ecully (Rhône) in 2012. Unique in France, this tool dedicated to innovation in firms, especially SMEs, will focus on providing services for the design, development, prototyping and implementation of innovative products and processes by manufacturers. To do this, MISTRAL will bring together:

- technologies transferable to the SMEs.
- Innovation support services available from Techtera.
- A «Textiles and Uses» laboratory focused on employing and assembling textiles for the construction industry and the habitat.
- A national multi-skills centre for young people training with the «Compagnons du Devoir et du Tour de France» (French organisation for artisans), the project's partners, to optimise the use of textiles and flexible materials in their 27 trades.



The success stories of our members

- **The JEC Americas Innovation Award** (category «carbon») was given to the textile group **Chomarat** for its product C-PLY Bi-Angle™ developed with the American and Korean universities of Stanford and Hanyang. A biaxial carbon textile made from unidirectional layers sewn together mechanically, using a special process for spreading the fibres. Target markets: automotive, wind energy, aerospace, sports & leisure, industry.



- **The 2012 Théophile Legrand International Prize for Textile Innovation** was awarded to researcher Pierre-Alexandre Bourgeois at the **Claude-Bernard Lyon 1 university (institute of research into catalysis and the environment)** for the luminous textile he developed in partnership with Brochier Technologies. Applications targeted for this innovative photocatalytic textile: the treatment of air, particularly the depollution of indoor air, an important public health issue for years to come.



- One of the ten winners of the 2012 awards given by the **MIT Technology Review** to innovators under 35 years is **Etienne Perret, researcher at LCIS (laboratory of design and systems integration)** of the University of Grenoble Alpes for work he has done, particularly in the THID project, approved by Techtera and funded by the ANR (national research agency) in 2009. Theme of his research: the development of cheap and highly sensitive radio frequency identification tags.

2012 in figures

119 members

22 approved R&D projects, including 16 co-approved

15 funded projects

6.9 partners on average per project

11 Workshops

3 shows

33 newsletters distributed to 2650 contacts

11 press releases in French and to the foreign press

19,000 visits to our website www.techtera.org

Lexicon for non-specialist

Biomaterials or biosourced materials: plant materials (wood, hemp, flax, cork, etc) or animal materials (feathers, sheep wool, etc)

Sol-gel chemistry: a process, formerly called «green chemistry», used in various fields, such as the encapsulation and preparation of hyper-porous materials. It is in the depositing of thin layers that finds its main application.

Chromatogeny: a new green chemistry process to give lingo-cellulosic materials (including paper and cardboard) biocompatible barrier properties against water, grease and gas.

E-textiles: textiles incorporating electronic components - also called smart or intelligent textiles.

Composite materials: material consisting of at least two components whose respective qualities combine to form a material with improved overall performance. A composite generally consists of a reinforcement in fibrous or filamentary form and a matrix acting as binder. We distinguish mass-market composites and high-performance composites used particularly in aeronautics and space.

Flexible materials: leather, paper, sheeting, etc - materials with the ability to undergo deformation without this being irreversible.

Photocatalysis: activation of a chemical reaction by photons, which act as a catalyst.

Innovation platform: place gathering technical equipment and services - with the general objective of spreading the culture of innovation to SMEs.

Collaborative R&D: research and development includes creative work in order to increase the sum of knowledge and its use in new applications. It includes basic research, applied research and experimental development to launch new products. R&D is collaborative when conducted by a minimum of three partners.

Plasma technology: a technology for producing different types of surface treatments. Textile treatment by cold plasma can modify the surface properties of the fibres without changing the qualities of their internal structure. It will, for example, improve the adhesive strength of a surface of fibres intended for use in composite materials.

The team

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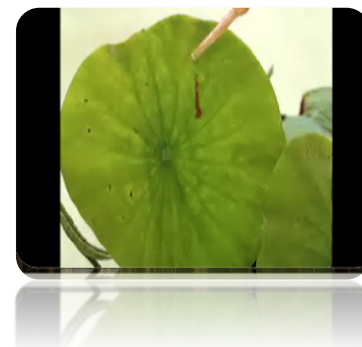
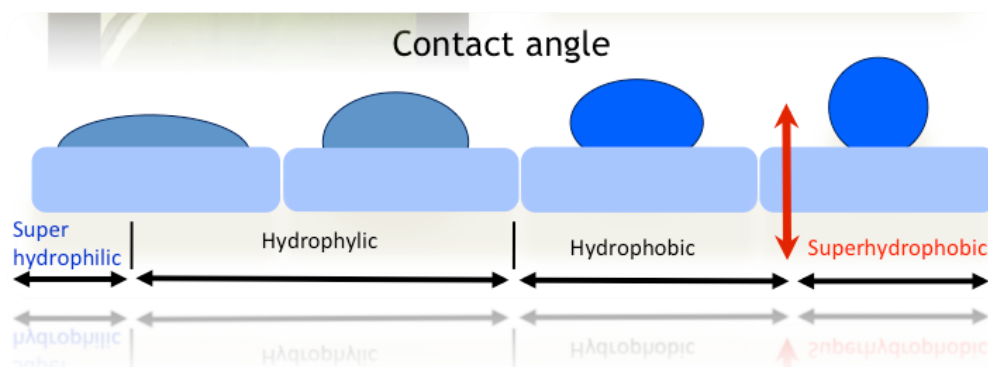


Tex-Shield

Environmental friendly and Durable Oil and Water Repellence Finish on Technical Textile



Research for SME Associations
Newsletter 1



New European Research Project (1.12.2012 – 30.11.2014)

SME-Associations:



Research partners:

TWI (UK)

University College Ghent (TO₂C)

INSA Lyon (Fr)

Context

The textile SME-Associations in this consortium has come together to represent textile SMEs, which are part of a sector that employs 1.9 Million people in Europe with a turnover that is expected to reach €260 Billion by 2015. It has been established that our Members require an environmentally responsible textile treatment with the ability to have strong crosslinks with the fabric, to provide durable multifunctional performance. There is a growing market need, for different applications require different functionality. It is an added advantage for the industry to be able to access materials at a highly competitive price. Recognising this need of our members, TEX-SHIELD project is aimed to develop a feasible solution. Various alternatives have been considered. Shorter chain materials such as those based on C6 chemistry are more rapidly degraded in the environment, but in the longer term any PFC material may have potential issues with sustainability and ecological performance. Additionally, neither the shorter chain PFCs nor the current silicone-based alternatives have been developed to a point where they deliver the necessary performance to meet the industry's durability and repellence standards. Consequently, we, the Textile industrial community, need an alternative to PFC-C8 to be developed, which is durable and equally performs. To amend the solution will require both chemical and process expertise beyond that available in our community and, consequently, we are running this project TEX-SHIELD funded by the European commission.

Objectives

The main purpose of the TEX-SHIELD project is to address the problems associated with textile protection by:

Eliminating problems with C8 PFCs' by-products associated with textile treatments.

Providing a cost-effective alternative treatment, which allows textiles to be provided with durable anti-soiling/anti-staining properties.

Reducing the total fluorine content in the treatment by means of new sol-gel derived additives in the form of nanoparticles or inorganic organic hybrid networks.

Demonstrating performance on a representative scale with regards to key technical parameters including soil resistance, abrasion resistance, cleaning cycle resistance.

Creating additional advantageous functions such as anti-static and anti-microbial characteristics to improve stability against mechanical, chemical impacts.

Developing flexible and versatile solutions for a broad range of textile supports different in structure (woven, knitted) and basic fibres (natural, synthetic or mixtures).

Developing a solution with a low ecological footprint, based on REACH-proof chemicals and taking in to account safety and health issues.

Providing a full Life Cycle Analysis (including washability cycle) and assessment of techno-economic benefits, via benchmarking against current products.

Providing the necessary technological transfer and training via SME-associations to ensure awareness and take up throughout the EC.

SME-association – Contact persons

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Article 1: Low energy Treatments for Textiles - Alan Taylor (TWI)

The ability of a surface to self-clean or be anti-fouling is often associated with the surface being characterised as exhibiting the *lotus leaf effect*. This phenomenon refers to the superhydrophobicity of surfaces due to its complex nanoscopic and microscopic nature which minimizes adhesion. It is exhibited by the leaves of the lotus flower which lends its name to the effect.

To mimic this effect in textiles, nanoscale features are imposed on the textile surface or on a micro-scale surface created on the textile surface. Alternatives are the inclusion of water repellent agents which have an inherent hydrophobicity. The hydrophobicity of the surface is related to its water contact angle; the higher the contact angle, the greater the hydrophobicity of the surface. Due to surface roughness, gas is entrapped under the water drop thus minimising the contact between the water and the surface. Contact angles greater than 90° are considered hydrophobic, with those in excess of 150° generally considered to be superhydrophobic or self-cleaning.

The oldest method of achieving water repellence or hydrophobicity of fabrics was by coating with paraffin or wax. Such coatings eventually washed out and are little used today. A number of approaches to increase the hydrophobicity of a textile surface have since been developed.

The last three decades has seen the increased use of perfluorochemicals or fluorocarbons as water repellent agents to achieve water and oil, and increasingly stain-repellent textiles. Such coatings are typically described as having low (free) surface energy and generally result in contact angles of greater than 100° . A simple and early approach in this regard was the joining of such chemicals onto binders, such as acrylic or polyurethane, which adhered them to the textile surface. Examples include an aqueous emulsion comprising polymers derived from monomers having a perfluoroalkyl group of about C_4-C_{14} , which was applied to a textile and then oven dried. Application of the emulsion onto a wide range of textiles, including cotton and nylon, using a range of deposition techniques, such as spraying and dipping, resulted in fabrics with both water and oil repellence. Such coatings have evolved over time with latest embodiments comprising both a hydrophobic and hydrophilic agent, that are fluorine-containing, and a cross linking agent wherein the surface energy of the coating changes in response to temperature. This coating for cotton containing textiles is designed to impart durable oil and water repellence even when exposed to multiple wash cycles.

Another very different approach to the provision of fluorocarbon on a textile is by using plasma treatment. Radio-frequency inductively coupled SF₆ plasma on cotton achieved a contact angle of 149° . The technique, in addition to depositing fluorine on the fabric surface, created a micro-roughness on the fibres due to the etching thus enhancing the hydrophobic effect. A highly hydrophobic textile is achieved, with fluorine again present on the surface, when a hexafluoroethane plasma is employed.

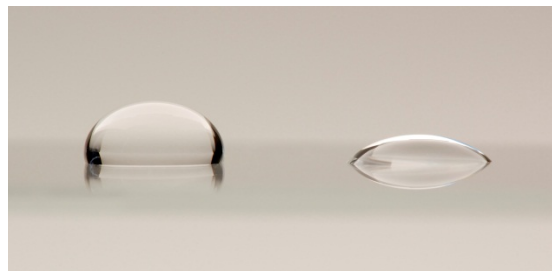
In addition to imparting good hydrophobicity on textiles, fluoropolymer based methods are often the most cost effective to use. However, for ecological reasons, the fluorocarbon polymer technology is increasingly under pressure and alternatives are being sought and deployed.

One such alternative is the development of perfluorooctane sulfonic acid (PFOS) free fluorocarbon water repellent agents, the so called C6 and C8 fluoropolymers or chemistry. PFOS and perfluorooctanoic acid (PFOA) are found at most in small quantities as byproducts when manufacturing fluorine-containing impregnating agents. These substances do not degrade in the environment and are considered to pose a toxicity risk although this had not been examined thoroughly.

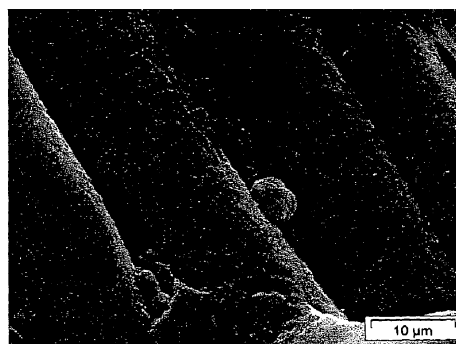
Products based on C8, manufactured using the telomerisation method, generally contain <1ppm PFOA and are classed as bioaccumulative [5]. They typically do not contain PFOS. Products based on C6 generally much lower levels of PFOA (<5ppb) and are considered to be non-bioaccumulative. They are often referred to as PFOS and PFOA-free fluorocarbon water repellents [6]. As with C8 based products, they typically do not contain PFOS. Although C8 contains more PFOA compared to C6, it has better adhesion to a fabric surface and is a more effective water- and oil-repellent therefore less has to be used in a coating to achieve the same effect as C6. Companies are exploring other shorter chain carbon lengths e.g. C4, which is the basis of the new Scotchgard™ Protector Repellent Finish, in order to reduce toxicity and the potential environmental impact of their products.

Thin polymer coatings, such as polymerised siloxanes, have been developed mainly as an alternative to using fluoropolymers at all for hydrophobicity. For argon plasma deposited polymerised hexamethyldisiloxane on polyester, contact angles of $120^\circ - 142^\circ$ were achieved.

A water contact angle of 178° , possibly the highest ever shown and considering the theoretical maximum is 180° , on a polyester surface has been demonstrated. Following a theoretical approach, nylon-6,6 short fibres were coated using the flocking process, onto a polyester surface. Poly(acrylic acid) chains were first grafted onto the nylon fibers followed by the grafting of 1H,1H-perfluorooctylamine onto the poly(acrylic acid) chains. This aimed at mimicking the surface of a lotus leaf so as to create a superhydrophobic surface on the polyester.



Above: Water droplets on a hydrophobic treated surface showing a contact angle of 90° (left) and untreated surface showing a contact angle $<90^\circ$ (right).



Above: fibre coated with nanoparticles

The incorporation of nanoparticles typically in combination with a thin polymer coating to achieve a nano-roughness on the textile surface and a corresponding increase in hydrophobicity have been developed. The use of silica nanoparticles has been shown for a range of textiles including cotton and polyester. A contact angle of greater than 90° appear readily achievable on cotton using fumed silica nanoparticles or silica particles synthesized by the Stöber method. Contact angles of greater up to and greater than 150° have been achieved by way of multiple dip-coatings on cotton using nanosilica and on polyester using silica nanoparticles.

A silica sol deposited on cotton yielded a contact angle of 155° whilst on polyester a contact angle of 143° was measured. A self-cleaning coating with a roll-off angle of 10° to 20° (a roll-off angle of less than 10°, like a contact angle of 150°, is considered superhydrophobic) is claimed for textile surfaces of polyethylene terephthalate (PET) and polyacrylonitrile (PAN) through use of a hydrolysed tetraethoxysilane incorporating hydrophobic particles such as precipitated or pyrogenic silicas.

The combination of silica nanoparticles and a fluorinated alkyl silane has been reported, yielding a superhydrophobic surface on textile [16] however the drawback of using fluoropolymer is inherent in this approach. The earliest commercially available nanoparticle satin- or soil-repellent coatings for fabric (Nano-tex and GreenShield) although using nanoparticles were in fact based on fluorocarbon chemistry.

Alternatives to silica including silver, aluminium oxide, copper, titanium dioxide and iron oxide have been explored. Silver nanoparticles offer the advantage over silica particles in reduced agglomeration when dip coating. There is however a cost penalty in their use especially in the textile field. Superhydrophobic coatings on polyester, with contact angles in the range 138° -150°, using silver nanoparticles have been shown [13]. The use of aluminium oxide, which is was vapour deposited on cotton followed by vapour deposition of silane (FTOS), yields a superhydrophobic surface with contact angles of greater than 150°. This approach has the disadvantage of utilizing two vapour deposition systems which will be costly.

Silica sol doped with 0.5% (wt/wt) to 2% (wt/wt) of copper nanoparticles have been explored both for hydrophobic and anti-bacteria properties. Contact angles of 155° have been obtained on cotton. A mixed sol, comprising hexadecyl-modified alkoxide and a crystalline suspension of titanium oxide, has yielded marked hydrophobic behaviour on cotton fabric. Some of the highest contact angles have been recorded through the use of iron oxide functionalized with a thin layer of fluoroalkyl silica. Contact angles as high as 172° have been shown with seemingly little dependence on the substrate type – this however was when the substrate was exposed to a magnetic field.