Committee of Management

Proceedings

San Francisco, USA
September 12, 2015
Committee of Management members from the following countries and regions attended:

Brazil                        Korea Rep.
China                         Netherlands
Chinese Taipei                Pakistan
Germany                       South Africa
Hong Kong, China              Spain
India                         Switzerland
Indonesia                     Turkey
Italy                         USA
Kenya

ITMF Officials: The Director General

In the Chair: Tiankai Wang (China)
President of ITMF
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HTP Committee - Bath Textiles – From Staples to Innovation
HTP Committee - Standard Code of Conduct
F&A Committee - The Green Digital Textile Factory of the Year 3000
F&A Committee - Eco-Design & Bio-based Fibres
Opening Remarks by the President

The President of ITMF, Mr. Tiankai Wang (China) welcomed the participants of the meeting and thanked everybody for attending the Federation’s Annual Conference 2015 in San Francisco/USA. He thanked especially the hosts American Cotton Shippers Association, Cotton Council International, Cotton Incorporated, J.G. Boswell Company, National Cotton Council of America, and Supima for hosting successfully the conference in San Francisco.

Proceedings of the Last Meeting

The Proceedings of the last meeting of the Committee of Management of ITMF, held in Beijing/China, on October 17, 2014, were duly circulated on February 5, 2015 and were approved by way of correspondence.

Matters Arising of the Previous Meetings

There were no matters arising from the minutes other than those included in the agenda.

Appointment of Auditors, Solicitors and Bankers

The following appointments were confirmed:

Auditors:        Universe (AG für Unternehmensberatung und Revision), Zürich
Solicitors:      Dres. Pestalozzi Lachenal & Patry, Zürich
Bankers:         Credit Suisse, Zürich
Financial Report by the Honorary Treasurer

The report on the financial position of the Federation at the end of 2014 was presented by Mr. Peter Gnägi (Switzerland), Honorary Treasurer of the Federation.

The Balance Sheet and the Income Statement as authorized by Universe, Zürich, were circulated to the Members of the Committee on April 2, 2015 and approved.

**Balance Sheet**

At the end of 2014, the Federation’s Net assets stood at CHF 857,932, an increase of +18% compared with 2013. The main reasons were higher “Cash and bank balances” (+CHF 61,501) and higher “Marketable securities” (+CHF 21,004).

The balance sheet in total remains very sound.

**Income Statement**

The Total income rose by +4% to CHF 627,719. The main reasons were a decrease in “Loss on receivables” and higher income from “Corporate members”. On the other hand, “Income from publications” fell by -25% to CHF 78,320. The conference gain amounted to CHF 24,856 (2013: CHF 60,691).

The Total expenditures dropped by -3.6% to 544,557. The main reason were lower expenses for “Salaries and social payments” which fell to CHF 352,794 (-8.6%). On the other hand “Travel expenses” increased by +29.0% to CHF 39,006.

Thus, the Federation’s Total gain amounted to CHF 108,018 in 2014 as compared to CHF 98,405 in 2013.

It is proposed that for 2016 the basis of calculation of Member Associations’ subscriptions remains unchanged:

- The minimum levy shall therefore remain CHF 4,000.
- The maximum levy shall therefore remain CHF 57,000.
- Subscription which fall between the upper and lower limits shall continue to be calculated according to the subscription formula based on an unaltered unit rate of CH 0.065064.
- No Member Association shall pay a subscription representing less than 60% of total national yarn production by the spinners, and consumption by the weavers, in the cotton-system sector.
It is also proposed that Associate Members’ levies shall for 2016 be as follows (unchanged):

**Textile Associations**
- CHF 15,000 for the Taiwan Textile Federation

**Cotton Associations**
- CHF 7,000 each for the American Cotton Shippers Association, Cotton Incorporated, International Cotton Association, National Cotton Council of America, Texprocil (India)
- CHF 5,000 each for the Australian Cotton Shippers Association, Bremen Cotton Exchange (Germany), Supima (USA), XPCC Cotton Association (China), Cotton Association of India

**Textile Machinery Associations**
- CHF 15,000 for the German Machinery Manufacturers Association (VDMA)
- CHF 13,000 for the Italian Textile Machinery Association (ACIMIT)
- CHF 12,000 for the Swiss Machinery Manufacturers Association (Swissmem)

Corporate Members (unchanged) shall pay an annual levy based on turnover, the minimum amounting to CHF 3,000 for companies with a turnover not exceeding USD 50 million. For a turnover between USD 50 and 200 million, the annual levy will be CHF 5,000 and for a turnover in excess of USD 200 million, it will be CHF 7,000 (maximum).

The report by the Honorary Treasurer was unanimously approved by the Committee.

**Report by the Spinners Committee**

**Opening Remarks by the Chairman**
The Chairman of the Committee, Mr. Andrew Macdonald (Brazil), opened the meeting with a few introductory remarks and welcomed all and thanked the guests for attending.

**ICA’s Cotton Consumers Committee**
The meeting was informed on the progress of this recently formed Committee that has the objective of strengthening the Spinner’s voice within the ICA. In this context the meeting was invited to comment on the current Value Differences as established by the ICA.
Spinners generally complain that these value differences as set by ICA do not reflect the real differences in quality related to the end products’ prices. Therefore, the Spinners Committee was of opinion that one option would be for value differences to be negotiated between the parties involved, as opposed to the value differences fixed by the ICA. It was pointed out that though ideal, this could become very complicated. However, the Committee agreed that this topic merited close discussion with the ICA in an attempt to reach a more equitable equilibrium between sellers and the consumers of cotton, and this is currently under discussion in the ICA’s Cotton Consumer Committee.

Cotton and Other Short-staple Fibres
The Committee was invited to discuss how other non-cotton short-staple fibres might be included in future discussions of the Spinners Committee.

In a lengthy discussion the meeting agreed that man-made fibres are important fibres for the spinning industry. Especially the share of blends has been increasing constantly in the past few decades. More and more spinners are spinning blends due to the increasing demand of the downstream industry.

Against this backdrop, the Committee agreed that there is the need to provide a platform within the ITMF where aspects, challenges and opportunities of man-made fibres can be discussed. Whether this should be done within the current format of the Spinners Committee or whether a separate Committee should be established needs to be seen. The Secretariat was asked to discuss this with representatives from the man-made fibre industry in the coming months at different occasions.

Spinners’ Committee Country Visit to China in 2014
The Chairman gave an extensive report with many photos about the Committee’s country visit to China in October 2014. He pointed out that such visits are extremely educational as they provide the possibilities to see and experience first-hand the situation and development of the cotton industry of a country. He emphasized that the hospitality extended to the Committee by the various hosts was outstanding. On this occasion, Mr. Macdonald thanked Mdm. Zhou, Director of Wuxi No. 1 Cotton Mill in China and member of the ITMF Spinners Committee for her hospitality during the Committee’s visit of Wuxi No. 1 Cotton Mill last year. The report of the visit is available on the ITMF website under “Reports”.

International Committee of Cotton Testing Methods (ICCTM)
The Vice Chairman of the ICCTM, Ms. Mona Qaud (Switzerland), updated the Committee on the activities of the ICCTM. In the past few years several cotton testing instruments have received the recognition of the ICCTM (Aqualab, Fibrotest, Premier aQuara 2). Currently the ICCTM is preparing the next Plenary Meeting which will be held at the fringes of the International Bremen Cotton Conference on March 15, 2016.

On this occasion the Committee was invited to propose research areas that are of importance to the cotton spinning industry. It was of the opinion that among others emphasis should continue on stickiness and contamination, as well as the standard requests for rapid instrument measurement of short fibre content, maturity and neps.
Spinners' Committee Country Visit to the USA in 2015

The Chairman gave a short overview of the Committee’s visit to the US cotton belt from September 13-19, 2015. The visits included stops in California, Texas, the region of Memphis and Georgia.

Next Country Visit 2016

The Committee discussed activities in 2016. The Committee received an invitation from the International Trade Centre (ITC) to visit in January/February 2016 major cotton producing countries in West Africa like Chad, Mali Burkina Faso, etc. During the meeting no decision was taken. Other countries to be considered are Brazil, Pakistan or Greece. The Secretariat was asked to discuss this among the members of the Spinners Committee after the Annual Conference.

In the meantime the invitation to West Africa was declined.

Next Meeting

The next annual meeting of the Committee will be held in connection with ITMF Annual Conference 2016 which will be held from November 17-19, 2016 in Jaipur/India.

Report by the Joint Cotton Committee (JCC)

Opening Remarks by the Chairman of the Meeting

The Chairman of the Committee, Mr. Jeff Elder (USA), opened the meeting with a few introductory remarks.

Presentation by Mr. Axel Drieling, Bremen Cotton Exchange, Germany

Mr. Drieling delivered a presentation with the title “Cotton Testing Round Trials Prove their Benefit for All Stakeholders”.

ICAC Task Force “Commercial Standardization of Instrument Testing of Cotton” (CSITC)

Following on the presentation by Mr. Drieling, the Chairman of the ICAC Task Force, Mr. Andrew Macdonald, asked for suggestions on how we can achieve more active participation from international spinners and traders in CSTIC thus moving forward towards trading of cotton that is 100% instrument tested.

It was argued that cotton associations around the world should consider the CSITC-testing results in their arbitration cases.
ICA-Bremen is certifying cotton testing laboratories. Currently, only 3 laboratories have managed to meet the standards of ICA-Bremen. One important pre-condition to be certified by ICA-Bremen is the participation in the CSITC-Round Trials.

Comments from the ITMF Spinners Committee

Mr. Andrew Macdonald, Chairman of the Spinners Committee, reported that the Committee was unanimously of the opinion that value differences should not be fixed by the ICA but negotiated between the parties involved. The Spinners Committee agreed to discuss this topic in more detail with the ICA Consumers Committee.

World Cotton Contract

Mr. Nick Earlam was invited to give a short summary and update on the World Cotton Contract.

The World Cotton Contract will trade alongside the benchmark Cotton No. 2 contract, which prices cotton grown and delivered in the United States only.

The new World Cotton Contract will price delivery of nine different origins – USA, Australia, Brazil, India, Benin, Burkina Faso, Cameroon, Ivory Coast and Mali – that account for approx. 75% of world cotton exports. US cotton will be the reference cotton with all others carrying either a premium or a discount. There are 12 different delivery points in four countries and regions:

1. USA (Memphis, Greenville, Dallas/Ft. Worth, Houston, Galvestone)
2. Australia (Melbourne, Sydney, Brisbane)
3. Taiwan (Port Keelung, Port Kaoshiung)
4. Malaysia (Port Kelang, Port Tanjung Pelepas).

The par description for the new contract is Colour 31/Middling, Staple 36, Leaf 3, Strength 27 and Micronaire 3.5-4.9.

Outside the USA the ICA Bremen will be only laboratory that can carry out classification of cotton for inclusion in the certified stocks of the ICE.

The launch of the World Cotton Contract is November 2015 with the first delivery month in May 2016.

Additional information is available on the website of the Intercontinental Exchange: https://www.theice.com/article/world-cotton.

Comments on the future of Long Staple (LS) and Extra Long Staple (ELS) Cotton

The Chairman opened the discussion on the current situation of LS and ELS cotton by stating that LS and ELS cotton production was in decline in recent years due to low demand. In addition California/USA was and still is suffering from a drought and in Xinjiang/China only upland cotton was subsidized in recent years.

The cotton policy in Xinjiang was changed this year with ELS cotton receiving now a 30% higher subsidy than upland cotton. It is expected that due to higher subsidy ELS
production in 2015/2016 will reach approx. 137'000 tons as compared to approx. 65'000
tons in 2014/2015. In the US production in 2015/16 is expected to be around 100'000 (-
50%) due to the long-term drought which resulted in reduced average. In Egypt,
production is under pressure as a result of low prices. For 2015/16 production is
estimated at around 80'000 tons (-30%). In India production is forecast to be slightly
lower at around 80'000 (-10%) in 2015/16.

The discussion showed that demand for ELS cotton is flat in the US and the EU in both
segments, apparel and home textiles.

With regard to the availability of quota for the imports of ELS cotton to China, there seem
to be enough quota available. It is highly unlikely that ELS cotton will be exported from
China.

The meeting was informed that testing results showed that in approx. 50% of all cases
where Pima/Supima products were tested, the ELS content was not 100%. This leads to
the assumption that often such products consist of a blend of upland cotton and ELS
cotton.

**Update Cotton LEADS**

Mr. Mark Messura, Cotton Incorporated, gave an update on the Cotton LEADS which is a
program initiated by the Australia and the USA and committed to responsibly and
sustainably produced cotton. In this context he stated that there is no commonly
accepted definition on sustainability. Nevertheless, Cotton LEADS is continuously
working on improving the environmental footprint of cotton production. Since 1980, cotton
production in the USA became more sustainable:

- Land use: 30% reduction per unit of production
- Soil erosion: 68% reduction per unit of production
- Irrigation water applied: 75% reduction per unit of production
- Energy use: 31% reduction per unit of production
- Greenhouse gas emissions: 22% reduction per unit of production

He pointed out that unlike BCI (Better Cotton Initiative) which is focusing on individual
farms and certifying farms, Cotton LEADS is a field to market program that offers cottons
which were produced under responsible production practices.

He further emphasised that Cotton LEADS is not a program that aims at better prices. In
this context it was stated that often spinners have to pay a premium for BCI-cotton which
is problematic as it reduces the spinners’ profitability. If retailers ask exclusively for BCI
cotton for which spinners have to pay a premium, BCI is becoming a trade barrier.

More information about Cotton LEADS is available on the website: **www.cottonleads.com**.

**China’s Cotton Policy**

Ms. Zhu Beina, Chairwoman, China Cotton Textile Association (CCTA), gave a short
overview of the Chinese cotton policy since 2011. She stated that the cotton policy
introduced in 2011 led to an accumulation of cotton stocks in the state reserves of up to
12 million tons which is more than the annual cotton consumption in China of around 7-8
million tons. The cotton policy was changed in 2014/2015 from a guaranteed cotton price to a more market-oriented system with payments of subsidies whereby the government pays a subsidy in the amount of the difference between a target price set by the government and the respective market price. Since international cotton prices fell quickly after their record highs in March 2011 below the guaranteed Chinese cotton price, cotton spinners in China were hesitant to buy Chinese cotton and imported more cotton. In addition, with Chinese cotton yarns produced of Chinese cotton being relatively expensive compared to foreign cotton yarns, yarn imports had soared. As a result cotton consumption in China dropped significantly in the past few years. As far as quota for cotton imports are concerned, she stated that beyond the minimum quota no additional quota would be available in 2015. This should have the purpose of increasing the consumption of Chinese cotton.

The following discussion confirmed that Chinese cotton spinners faced and are still facing a very difficult situation. One difficult question for Chinese spinners is for example what the quality of the cotton in the state’s warehouses is like? A large bulk of the 12 million tons of cotton has been stored for more than 2 years. This raises the question whether, and if so, to what extent the quality parameters have deteriorated over time.

As a result of weak demand and a lack of support for ELS cotton, production had dropped significantly from 130'000 tons in 2011 to only 38'000 tons in 2013 (source. ICAC).

India’s Cotton Industry

Mr. Suresh Kotak, Kotak Ginning & Pressing Industries (India), gave a short presentation on the some developments in the India’s cotton industry.

He stated that India’s has become the largest producer of cotton in 2014/15 and that it has more potential to increase cotton production by increasing yield. With the average yield in India below the world average, especially in the important cotton growing state of Maharashtra, the potential is significant. In this context, he pointed out that yields in Rajasthan increased significantly in recent years from 700 kg to 1’000 kg per hectare.

Furthermore, it was interesting to learn that there are plans to grow ELS cotton in Rajasthan by the year 2018.

During the discussion it was stated that the current procurement policy is likely to continue also in 2016 with cotton prices unlikely to go up with world cotton stocks at approx. 20 million tons.

On the one hand, new investments in additional spinning capacities supported by the availability of cotton and by strong cotton yarn demand from China have led to higher cotton yarn production. On the other hand, investments in shuttle-less looms are still relatively weak and hence also the production of woven fabrics is lagging behind that of yarn production.
Elections of the Chairmanship

Mr. Jeff Elder (J.G. Boswell Company, USA) thanked the members of the Committee for the privilege to serve as JCC-Chairman and for their support during the last six years. Mr. Christian Schindler, Director General, thanked Mr. Elder for his outstanding leadership and continuous support of the Committee by presenting him a token of appreciation.

The Committee was invited to elect a new Chairperson of the Joint Cotton Committee. Mr. Nick Earlam (Plexus, UK) was proposed by Mr. Schindler and seconded by Mr. Andrew Macdonald (Brazil) and elected unanimously as the new Chairman of the Committee.

Report by the Home Textiles Producers (HTP) Committee

Opening Remarks

The meeting opened with a few introductory remarks by the ITMF Director General, Mr. Christian Schindler. He conveyed the apologies of the Committee’s Chairman, Mr. Benoit Hacot (France) who unfortunately had to cancel his participation.

Presentation by Euromonitor International

Ms. Cruz del Barrio, Head of Home and Garden Research at Euromonitor International, gave a presentation with the title “Bath Textiles – From Staples to Innovation”.

Presentation by Gherzi Textile Organisation

Mr. Karim Shafei, Gherzi Textile Organisation, gave an update on the status of the Committee’s initiative “Standard Code of Conduct”.

Next Meeting

The next meeting of the Committee will take place on Tuesday, September 29, 2015 (17.00-18.30 hrs.) in New York/USA (Textile Building, 295 Fifth Avenue, 30th - 31st Street) in conjunction with the Home Textile Market Week (Sep 28 - Oct 1, 2015).

Elections

The Committee was called upon to elect a new Chairman. Mr. Yang Zhaohua, Chairman of the China Home Textile Association (CHTA), was nominated and endorsed by Mr. Bashir Ali Mohammad (Pakistan). The Committee elected Mr. Yang unanimously as the next Chairman of the Committee.

Mr. Schindler congratulated Mr. Yang to the election as Chairman. On this occasion he also thanked Mr. Hacot for his dedicated service for the Committee as Vice Chairman and Chairman of the Committee during the past 6 years.
Opening Remarks
The Chairman, Mr. Loek de Vries, opened the meeting with a few introductory remarks.

Presentation by Mr. Michele Riva from EFI-Reggiani (Italy)
Mr. Michele Riva, Sales & Marketing Director of EFI-Reggiani, gave a presentation with the title "The Green Digital Textile Factory of the Year 3000".

The presentation centered on the topic of more environmentally friendly and green production by making use of new processes, new chemistry and new automation which lead to the reduction of inks, lower pollution, lower energy consumption and lower water consumption.

The presentation was followed by a lively discussion.

Presentation by Mr. Pascal Denizart from CETI (France)
Mr. Pascal Denizart, Director of the Center of European Textile Intelligence (CETI), gave a presentation with the title "Eco-Design & Bio-based Fibres".

The presentation explained – looking at wipes – how a consumer product can be designed and produced ecologically starting with the various sources of bio-based fibres and how they can be used and recycled indefinitely either biologically or technically (cradle-to-cradle).

The presentation was followed by a lively discussion.

Visit of TenCate/Netherlands
Mr. de Vries invited the members of the F&A-Committee as well as all other ITMF members interested to visit their textile complex in the Netherlands in November this year in conjunction with the "9th Aachen-Dresden International Textile Conference" in Aachen/Germany (November 26/27, 2016). It was suggested to visit TenCate on November 25, 2015. The ITMF Secretariat will provide the Committee members and the ITMF membership with more details in October.

Future Activities
Due to the lack of the time there was no possibility to discuss/propose additional activities in 2016. Therefore, any additional suggestions for activities until the ITMF Annual Conference 2016 are most welcome and should be directed to the ITMF Secretariat.
Next Regular Meeting

The next regular meeting of the F&A-Committee will be in conjunction with the ITMF Annual Conference 2016 which will be held from November 17-19, 2016 in Jaipur/India.

Membership

Since the last meeting of the Committee of Management in October 2014 the following changes in the composition of the ITMF membership took place:

ENTRIES:
1. Uzbek Light Industry Ass., Uzbekistan (Member Ass., CHF 9’900)
2. Embee Plumbon, Indonesia (Corporate, CHF 5’000)
3. Al Karam Textile Mills, Pakistan (Corporate, CHF 5’000)
4. Lakshmi Machine Works, India (Corporate, CHF 7’000)
5. Reggiani Macchine, Italy (Corporate, CHF 5000)
6. Fujian Siyu Trade, China (Corporate, CHF 3’000)
7. Black Peony (Group), China, (Corporate, CHF 4’000)
8. Yunjin Group, China (Corporate, CHF 4’000)
9. NewWide Knitting & Dyeing (Changzhou), China (Corporate, CHF 3’000)
10. Wuxi No.1 Cotton Mill, China (Corporate, CHF 4’000)
11. Jiangsu Dongdu Textile Group, China (Corporate, CHF 4’000)
12. Embry Holdings, China (Corporate, CHF 5’000)
13. Luthai Textile, China (Corporate, CHF 5’000)
14. AnHui HuaMao Group, China (Corporate, CHF 5’000)
15. Shandong Weiqiao Pioneering Group, China (Corporate, CHF 5’000)
16. Shandong Ruyi Science & Techn. Group, China (Corporate, CHF 5’000)
17. D & Y TEXTILE & GARMENT GROUP, China (Corporate, CHF 5’000)
18. Jingwei Textile Machinery, China (Corporate, CHF 5’000)
19. Jiangsu Jinsheng Industry, China (Corporate, CHF 5’000)
20. Loftex China Ltd., China (Corporate, CHF 5’000)
21. Sunvim Group, China (Corporate, CHF 5’000)
22. Yuyue Hometextile, China (Corporate, CHF 5’000)
23. Jilin Chemical Fiber Group, China (Corporate, CHF 3’000)
24. XPCC Cotton Association, China (Associate, CHF 5’000)
25. PinterCaipo, Spain (Corporate, CHF 3’000)
26. Outpace Spinning, Bangladesh (Corporate, CHF 3’000)
27. Graphics Textiles, Bangladesh (Corporate, CHF 3’000)
28. CETI, France (Corporate, CHF 3’000)
29. Cotton Association of India (CAI), India (Associate, CHF 5’000)
30. Bitratex, Indonesia (Corporate, CHF 5’000)
Date and Location of ITMF Annual Conference 2016

Mr. Wang informed the Committee of Management that the Federation’s next Annual Conference will be held in Jaipur/India from November 17 – 19, 2016.

The Committee of Management welcomed this invitation very much and thanked CITI for having invited the ITMF membership to convene in 2016 in India.

Concluding Remarks by the President

Mr. Wang Tiankai thanked the Committee’s members for attending this year’s Annual Meeting in 2015 in San Francisco/USA. He invited everyone to participate in next year’s ITMF Annual Conference 2016 in Jaipur/India.

December 2015
Cotton Testing Round Trials  
Prove their Benefit for All Stakeholders

Axel Drieling  
Bremen Fibre Institute (FIBRE)  
ICA Bremen  

ITMF Joint Cotton Committee  
San Francisco, USA  
Sept. 10, 2015

CSITC Aim

Commercial Standardization of Instrument Testing of Cotton:  
**CSITC** Task Force

- **Aim:** Adopt instrument testing instead of manual classing as an objective and reliable basis for cotton contracts

Ideally, all laboratories should, wherever they are located, achieve the same test results for the same bale / sample

Practically, there will always be some variation between test results

- Based on variations in the sample or between samples → unavoidable (?)
- Based on testing (instrument, surrounding, operator....) → this should and can be minimized!

Available Round Trials (1/2)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>USDA-HVI Checktest</th>
<th>ICA Bremen Round Trial</th>
<th>CSITC Round Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realization</td>
<td>USDA-AMS</td>
<td>FIBRE</td>
<td>FIBRE and USDA-AMS</td>
</tr>
<tr>
<td>Number of participants</td>
<td>50 to 80 HVI instr.</td>
<td>110 to 150 HVI instr.</td>
<td>70 to 100 active labs per RT</td>
</tr>
<tr>
<td>Kinds of instruments</td>
<td>HVI types</td>
<td>Every kind</td>
<td>HVI types</td>
</tr>
<tr>
<td>Cottons</td>
<td>US Upland</td>
<td>World</td>
<td>US Upland (+ homogeneity)</td>
</tr>
<tr>
<td>Costs</td>
<td>Annual fee</td>
<td>Free of charge</td>
<td>Annual fee 1000 USD</td>
</tr>
<tr>
<td>Frequency</td>
<td>12 times/year</td>
<td>3 times/year</td>
<td>4 times/year</td>
</tr>
<tr>
<td>Number of samples</td>
<td>2 samples</td>
<td>1 sample</td>
<td>4 samples</td>
</tr>
<tr>
<td>Number of tests per sample</td>
<td>12 tests per sample</td>
<td>Proposed: 6 tests per sample</td>
<td>30 tests per sample (fixed)</td>
</tr>
</tbody>
</table>

Suitable Measures

1. Standardization (same test method, parameters...)
2. Calibration (same and suitable calibration material)
3. Guidance for suitable testing  
   → CSITC Guideline in 7 languages (available at csitc.org)
4. Round Trials
   - Round Trials are comparing results of different laboratories on the "same" sample = homogeneous samples from the same bale
5. Re-tests
6. Laboratory Certification
Available Round Trials (2/2)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>USDA-HM Checklist</th>
<th>Bremen Round Trial</th>
<th>CSITC Round Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information to labs</td>
<td>Short table</td>
<td>Short table</td>
<td>Detailed analysis for improvements</td>
</tr>
<tr>
<td>Rating</td>
<td>No</td>
<td>No</td>
<td>Official laboratory evaluation</td>
</tr>
<tr>
<td>Evaluation of</td>
<td>Laboratory average</td>
<td>Laboratory average</td>
<td>Laboratory average and all single data</td>
</tr>
<tr>
<td>Evaluation of</td>
<td>Trueness Between instr. var</td>
<td>Trueness Between instr. var</td>
<td>Trueness Between instr. Variation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Precision</td>
</tr>
<tr>
<td>Additional benefit</td>
<td></td>
<td>Calibration Material delivered with the RT samples</td>
<td></td>
</tr>
</tbody>
</table>

CSITC Round Trials Explanation

- 4 samples, 30 tests on 5 days, for 10 properties.
- 6 properties are taken for evaluation: Micronaire, Strength, Length (UHML), Length Uniformity, Color Rd and +b
- Analysis / Evaluation
  - Difference between each lab result and reference
  - Evaluation grade based on difference for each property (ranging from zero (best) to more than 1).
  - An Overall Evaluation Grade = average of all 6 properties (ranging from zero to more than 1)
  - Plus analysis of variation of single data

Achievable Benefits from CSITC RTs

Benefits for Laboratories

- Labs can easily learn about their systematic deviations from the worldwide reference (and their variability)
- Labs can determine where they got problems / where they have to improve, can systematically target on given problems
- Labs get detailed information, allowing to analyze reasons for deviations
- Official validation / proof for their lab proficiency: grade
- Hence, laboratories should get more accurate over time; variation between laboratories should decrease over time.

Did the variation between laboratories actually decrease?
Improvement in Strength Variation

Strength, g/tex

Average SD interlab (30)

Improvement in Micronaire Variation

Micronaire

Average SD interlab (30)

Improvement in Length Variation

Length (UHML, inch)

Average SD interlab (30)

Improvement in Color Variation

Colour

Average SD interlab (30)

Colour Rd

Colour +b
In average, participating labs are drastically improving!
Achievable Benefits from CSITC RTs
Benefits for Stakeholders (1/2)

- Less variation between laboratories for same bales
  ➔ Less claims based on differences between different labs
  **Benefit for all stakeholders (production, trading, spinners)**

- Suitable laboratories can be chosen based on objective criteria
  - Based on their (public) participation in the CSITC RTs
  - Based on their actual evaluation (if provided by the lab)
  **Benefit for all stakeholders without an own laboratory**

Achievable Benefits from CSITC RTs
Benefits for Stakeholders (2/2)

- **Cotton producers**
  - Long term consistent data
  - Proof that reliable data is provided to buyers

- **Control companies** ... (self evident)

- **Instrument manufacturers, research** ...

- **Cotton spinners with own labs**
  - (not necessary for daily work, as long as instr. is consistent)
  - Results from sellers ... can be used in the same database with your data e.g. for bale laydowns, without additional tests in your labs
  - Doubts / claims should only be given or accepted based on re-tests with CSITC RT approved instruments (and suitable evaluation grade)

---

CSITC Round Trial Participation

- **Asia 36%**
  (8 countries; India 23 instr. per RT, Uzbek. 11, China 8)

- **South America 23%**
  (3 countries; Brazil 29 instr. per RT)

- **North America 15%**
  (1 country; USA 21 instr. per RT)

- **Europe 11%**
  (9 countries)

- **Africa 10%**
  (8 countries)

- **Australia 5%**

➔ CSITC RTs are accepted everywhere in the world as an objective and effective tool for assuring accurate test results

---

Public List of Participants

All labs, except they do not wish to appear

List available on:
- CSITC.org
- ICAC.org
CSITC Round Trial Participation

Types of laboratories (where given):
• 72% Cotton production / cotton associations / control
• 9% Processing
• 21% Others (research, manufacturers, others)

→ Well accepted for cotton production and control companies, getting a standard for cotton production
→ Cotton processing labs are missing

Additional Measures

• Re-tests
  – Actually given samples re-tested by a second lab
  – Prove actual daily performance on given samples
  – In addition to Round Trials for close quality control
• Laboratory Certification
  – In-depth look into laboratory management and assured quality
  – General: ISO 17025 accreditation
  – Cotton Specific: ICA Bremen Certification
    (please contact info@ica-bremen.org)
  – Using Round Trial results as one important proof for lab accuracy

Any questions?

More info on CSITC and Round test results on csitc.org. Contact: drieling@faserinstitut.de
HOME TEXTILES:
FROM STAPLES TO INNOVATION – FINDING THE ROAD TO GROWTH

M. CRUZ DEL BARRIO
HEAD OF HOME AND GARDEN RESEARCH
10 September 2015
Who Is Euromonitor International?

Our Services
- Syndicated Market Research
- Custom Research and Consulting

Expansive Network
- On the ground researchers in 80 countries
- Cross-comparable data across every market

Our Expertise
- Consumer Trends & Lifestyles
- Product Categories & Distribution channels
- Economics & Forecasting
Euromonitor International’s Network and Coverage

12 OFFICE LOCATIONS
London, Chicago, Singapore, Shanghai, Vilnius, Santiago, Dubai, Cape Town, Tokyo, Sydney, Bangalore, and São Paulo

80 COUNTRIES
in-depth analysis on consumer goods and service industries

210 COUNTRIES
demographic, macro- and socio-economic data on consumers and economies
Euromonitor International – Who are we?
HOME TEXTILES: MARKET OVERVIEW

EMERGING MARKETS: STAPLES

DEVELOPED MARKETS: INNOVATION

KEY TAKEAWAYS
The Building Blocks of the Global Home Textiles Industry

Home Textiles
US$109bn

- Bed Textiles
  - US$49bn

- Bath Textiles
  - US$22bn

- Rugs
  - US$15bn

- Living Room Textiles
  - US$12bn

- Kitchen and Dining Textiles
  - US$11bn
US$109bn
GLOBAL RETAIL SALES OF HOME TEXTILES (2014)

1.6%
GLOBAL GROWTH (ANNUAL AVERAGE 2009-2014)

27%
OF TOTAL SALES COME FROM CHINA (2014)
China Leads Growth in Emerging Economies…

Home textiles value sales by region (2014)

- Western Europe: 22%
- North America: 23%
- Asia Pacific: 41%
- Latin America: 6%
- Eastern Europe: 5%
- Middle East and Africa: 3%
- Australasia: 2%

China Leads Growth in Emerging Economies…
HOME TEXTILES: MARKET OVERVIEW

... but Developed Countries Remain Key Players

Home textiles value sales by region (2014)

- Developed markets 46%
- Asia Pacific 41%
- Latin America 6%
- Eastern Europe %
- Middle East and Africa 3%

© Euromonitor International
Staples Boosts Sales

Home textiles retail sales growth by category (World, 2014)

% Value Growth


Growth Drivers

- Bath Textiles
- Bed Textiles
- Kitchen and Dining Textiles
- Living Room Textiles
- Rugs

© Euromonitor International
How does Home Textiles Compare with other Industries?

Global retail sales by industry, US$ billion, 2014

- Cheese: US$125 billion
- Skin Care: US$125 billion
- Home Textiles: US$100 billion
- Laundry Care: US$75 billion
- Ice Cream: US$75 billion
Homes = Home Textiles: Rising Ownership Drives Sales

Total housing completions and home textiles growth (2009-2014)

- Housing Completions (2009-2014)
- Home Textiles CAGR (2009-2014)
Homes = Home Textiles: My Home is My Castle

New housing completions growth: top and bottom countries, 2012-2014 % CAGR

- China
- Russia
- S. Korea
- Turkey
- Brazil
- France
- US
- Mexico
- Spain

Housing construction growing fastest
Housing construction yet to recover to pre-recession levels
Staples Drive Growth

Home textiles growth by category (2009-2014)

- Bed Textiles
- Bath Textiles
- Living Room Textiles
- Kitchen and Dining Textiles
- Rugs

US$ Billion

% Annual Growth

2009-2014 absolute
2009-2014 CAGR %
US$49bn
GLOBAL RETAIL SALES OF
BED TEXTILES (2014)

2.7%
GLOBAL GROWTH
(ANNUAL AVERAGE
2009-2014)

US$85
PER HOUSEHOLD
EXPENDITURE IN THE US
(2014)
US$22bn
GLOBAL RETAIL SALES OF BATH TEXTILES (2014)

1.9%
GLOBAL GROWTH
(ANNUAL AVERAGE 2009-2014)

US$37
PER HOUSEHOLD EXPENDITURE IN THE US (2014)
HOME TEXTILES: MARKET OVERVIEW
EMERGING MARKETS: STAPLES
DEVELOPED COUNTRIES: INNOVATION
FUTURE CHALLENGES AND OPPORTUNITIES
KEY TAKEAWAYS
Access to Water Supply…

Households with water supply (% of total)

- Netherlands
- Germany
- UK
- US
- Poland
- Brazil
- Russia
- Indonesia

% of households

0 20 40 60 80 100

Indonesia

94.50%
… Doesn’t Mean Access to a Shower

Households with a Bath or Shower (% of Total)(2014)

- Netherlands
- Germany
- UK
- US
- Poland
- Russia
- Brazil
- Indonesia

% of households

64.30%
HOME TEXTILES: MARKET OVERVIEW
EMERGING MARKETS: STAPLES
DEVELOPED MARKETS: INNOVATION
FUTURE CHALLENGES AND OPPORTUNITIES
KEY TAKEAWAYS
DEVELOPED MARKETS: INNOVATION

How to Create Value Growth in Developed Markets?
Growth Comes from Innovation

AG + CuO

Bed Textiles
GLOBAL RETAIL SALES OF ANTI-AGERS (2014)
US$20

GLOBAL GROWTH (ANNUAL AVERAGE 2009-2014)
3.5%

PER CAPITA EXPENDITURE IN GERMANY (2014)
US$24.6bn
US$20
HOME TEXTILES: MARKET OVERVIEW
EMERGING MARKETS: STAPLES
DEVELOPED COUNTRIES: INNOVATION

KEY TAKEAWAYS
Contrasting Factors Shaping the Future of the Regions

**Asia Pacific**
- Strong growth forecast
- Buoyant housing market
- Strong social mobility
- Young population
- Home textiles = Staple products

**Latin America**

**Middle East and Africa**

**North America**
- Weak growth forecast
- Struggling property market
- Uncertain economic situation
- Ageing population
- Home Textiles = Discretionary products

**Australasia**

**Western Europe**

**KEY TAKEAWAYS**
Key Takeaways

Emerging Markets
- Lower expenditure per household
- Growth potential

Access to Products
- Improving living standards

Developed Markets
- High expenditure per household
- Stagnant growth

Creating Value
- New product development
THANK YOU FOR LISTENING

M. Cruz del Barrio
Head of Home and Garden Research
cruz.delbarrio@euromonitor.com

Euromonitor International
60-61 Britton Street
London EC1M 5UX

www.euromonitor.com

Note: 2014 figures are based on part-year estimates.
Home Textile Standard Audit Label

for

ITMF

Textile Market Week
New York

Presented by

GHERZI

September 2015
Prepare Project Presentation

One on one meetings with retailers
- Target 4 retailers
- Introductions by committee members

One on one meetings with similar initiatives

Arrange initial meeting for retailers / partners

FINALIZE MODEL

Scope

Actual start

MAY

JUN

JUL

AUG

SEP

OCT

MAR

APR

FINALIZE MODEL

1-2 meetings
**Status**
- Draft 1st edition ready for review
- Integrated codes of conduct of 20 top retailers (GSPA – 10)
- Combined stringent requirements in most comprehensive code of conduct
- Communicating with various leading retailers
- Working on expanding participation by manufacturers
- Establishing contact with like-minded organisations

**CONFLICTING STANDARDS**

<table>
<thead>
<tr>
<th></th>
<th># of hours</th>
<th>Overtime</th>
<th>Hours exceptions</th>
<th>Days off</th>
<th>Days off exceptions</th>
</tr>
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<tbody>
<tr>
<td>Walmart</td>
<td>48</td>
<td>12</td>
<td>None</td>
<td>1/7</td>
<td>Could be 1 + 1/4</td>
</tr>
<tr>
<td>Sears</td>
<td>48</td>
<td>12</td>
<td>72 in pink season</td>
<td>1/7</td>
<td>Could be exchanged</td>
</tr>
<tr>
<td>JCPenney</td>
<td>Local Laws</td>
<td>Local Laws</td>
<td>None</td>
<td>Local Laws</td>
<td>None</td>
</tr>
<tr>
<td>IECA</td>
<td>48</td>
<td>12</td>
<td>None</td>
<td>1/7</td>
<td>None</td>
</tr>
<tr>
<td>Macy's</td>
<td>48</td>
<td>12</td>
<td>72 in pink season</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**A universal code of conduct**
- Standard sets of requirements
- Promotes a collaborative approach
- Encourages better communication
- Ensures uniformity

**Next Steps**
- Prioritise stakeholders to define and set clear objectives
- Elaborate existing code of conduct - finalize 1st edition
- Collect feedback from various stakeholders
- Build a board of funding members during 1st year

**Social Compliance**
- Current practices are not optimal
- Gaps in coverage
- Confusing and conflicting standards
- Lack of consistency
- Disruption to production
- Lengthy process

**Costs**
- Disruption (operational disruptions)
- Adaptation (new employment)
- Resources (time, manpower)
- Audit fees

**Gaps in code of conduct**
- Example from toilet policy

**The Future**
- Transparency
- What can the future of this initiative include?
  1. Auditing
  2. Traceability across the supply chain
  3. Label of differentiation
  4. Communication with consumers

**Business made easier**
- Easy to implement
- Simpler auditing
- Better communication between retailers and workers
- Optimisation of resources
- Evolution NOT revolution
- Best practice and capacity building tools
- Opportunity for developing a collaborative database

**Costs and reliability**
- Disruption (operational disruptions)
- Adaptation (new employment)
- Resources (time, manpower)
- Audit fees
List of target retailers

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SEARS</td>
<td>★</td>
</tr>
<tr>
<td>2</td>
<td>WALMART</td>
<td>★</td>
</tr>
<tr>
<td>3</td>
<td>CARREFOUR</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>JC PENNEY</td>
<td>★</td>
</tr>
<tr>
<td>5</td>
<td>AUCHAN</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BBC</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NEXT</td>
<td>★</td>
</tr>
<tr>
<td>8</td>
<td>PRIMARK</td>
<td>★</td>
</tr>
<tr>
<td>9</td>
<td>Target</td>
<td>★</td>
</tr>
<tr>
<td>10</td>
<td>Khol's</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>IKEA</td>
<td>★</td>
</tr>
<tr>
<td>12</td>
<td>Otto</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Tesco</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Kmart</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Macy's</td>
<td>★</td>
</tr>
<tr>
<td>16</td>
<td>CHF</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Li &amp; Fung</td>
<td>★</td>
</tr>
<tr>
<td>18</td>
<td>Lowe’s</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Home Depot</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>PIER – 1</td>
<td></td>
</tr>
<tr>
<td>BRANDS</td>
<td>ORGANIZATIONS</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td>JCPenney</td>
<td>SCAN Supplier Compliance Audit Network</td>
<td></td>
</tr>
<tr>
<td>Walmart</td>
<td>GAFTI</td>
<td></td>
</tr>
<tr>
<td>LI &amp; Fung</td>
<td>Sustainable Apparel Coalition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NRF NATIONAL RETAIL FEDERATION®</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Key Message</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Retailers are aware of “audit fatigue”</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>They are happy to cooperate</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Biggest issue: agree with other retailers on methodology</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Second biggest issue: cross-industry standardization</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Every retailer is part of one or several initiatives / takes time</td>
<td></td>
</tr>
</tbody>
</table>
### Key message: Similar initiatives

<table>
<thead>
<tr>
<th>Name</th>
<th>SAC</th>
<th>SCAN</th>
<th>GAFTI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sustainable apparel coalition</td>
<td>Supplier Compliance Audit Network</td>
<td>Global Apparel Footwear and Textile Initiative</td>
</tr>
<tr>
<td>Focus</td>
<td>• Environment / sustainability</td>
<td>• Security</td>
<td>• Compliance</td>
</tr>
<tr>
<td></td>
<td>• Social Compliance</td>
<td></td>
<td>• Sustainability</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Product safety</td>
</tr>
<tr>
<td>Resources</td>
<td>• Large organization</td>
<td>• Small organization</td>
<td>• Under construction</td>
</tr>
<tr>
<td></td>
<td>• US / EU offices</td>
<td>• Government support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• USD 10 Mn</td>
<td>• Auditing fees</td>
<td></td>
</tr>
<tr>
<td>Established</td>
<td>• 2009</td>
<td>• Launched in 2014</td>
<td>• Under construction</td>
</tr>
<tr>
<td>Tool developed</td>
<td>• Higgs Index (self assessment)</td>
<td>• Standard security audit</td>
<td>• Under construction</td>
</tr>
</tbody>
</table>
### Key messages: Conclusions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Process will take a long time (2-3 years)</td>
</tr>
<tr>
<td>2</td>
<td>It will require significant resources</td>
</tr>
<tr>
<td>3</td>
<td>Other initiatives have similar objectives and better resources</td>
</tr>
<tr>
<td>4</td>
<td>Industry is rarely involved in existing initiatives</td>
</tr>
<tr>
<td>5</td>
<td>Other efforts are not identical</td>
</tr>
</tbody>
</table>
### Next steps: We have several options

<table>
<thead>
<tr>
<th></th>
<th>Continue as is</th>
<th>Join other initiatives</th>
<th>Build an independent index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
<td>Independence</td>
<td>Benefit from existing set-up (less time / resources)</td>
<td>Independent index Within ITMF scope</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
<td>Slow</td>
<td>No independence</td>
<td>Slow</td>
</tr>
<tr>
<td><strong>Actions/ resources</strong></td>
<td>Meeting retailers and arranging launching meeting</td>
<td>To build internal support within ITMF</td>
<td>Marketing the index</td>
</tr>
</tbody>
</table>
THANK YOU
"The Green Digital Textile Factory of Y3K"

Mr. Michele Riva, Sales and Marketing Director
San Francisco, 11 September 2015
About Reggiani

1948
- Conventional Printing (manual)

1960
- Rotary and Flat-Bed Printing Machine (analogical)

2002
- First Digital Printer

2009
- Digital Printing Platform

2010
- Birth of Reggiani Group Solution Provider

2013
- New Technologies Patented

2014
- New Technologies

2015
- Birth of
Mission

Build a GREEN Y3K textile world

a Green factory:
a Green global solution for a Green global textile world
EFI’s Portfolio

- Web-2-Print
- MIS
- Fiery
- Cloud Services
- Superwide Format
- Wide Format
- Labels
- Ceramics
- Textile
The Factory of the Future

100% GREEN & SUSTAINABLE

NEW TECHNOLOGIES

- NEW processes
- NEW eco-chemistry
- NEW automation

NEW DIGITAL FACTORY

- energy savings
- H2O saving
- reduced inks and color waste
New Solution & Technologies

WHY EFI | REGGIANI IS DIFFERENT?

NEW SOLUTION & TECHNOLOGIES

1. NEW PROCESSES
   - Green processes
   - Ad hoc chemical treatments
   - Ad hoc inks

2. NEW ECO-CHEMISTRY
   - < 20% inks waste
   - Water based inks
   - New inks

3. NEW AUTOMATION
   - New software for production and organizational process management
New Processes

1. **NEW PROCESSES**

- Print on wet → REGGIANI MACCHINE
- Continuous steaming HP → MEZZERA
- Ammonia treatment (for fabrics) → MEZZERA
- Ammonia treatment (for yarns) → JAEGGLI
- Indicone (for yarns) → JAEGGLI
- Digital finishing → OSIRIS
New Eco-Chemistry

2. NEW ECO-CHEMISTRY

. Pigment inks & finishing process (for blend fabric)

. No wash disperse inks (for polyester fabric)

. No steam reactive inks (for cotton fabric)

. Acid inks & double face printing process (for silk fabric)

. Preparation process for automotive

. Preparation process for terry towel
New Automation

3. NEW AUTOMATION

the new software application for the factory of the future

FIERY SW \rightarrow EFI

Cloud Services
From open systems to integrated solutions

SOFTWARE

TECHNOLOGICAL PLATFORM

HEAD

INKS

INTEGRATED SOLUTION

GLOBAL APPROACH

CROSS KNOWLEDGE
INTEGRATION BETWEEN EFI & REGGIANI

THE Y3K ERA

The best of breed of TECHNOLOGIES meets
The best of breed of the MADE IN ITALY
Come and visit EFI REGGIANI booth at ITMA in Milan

Hall 18 Booth A109
Center of European Textile Intelligence

ECO-DESIGN & BIO-BASED FIBERS
An unique location in the North of France & Europe

Inside a true hub dedicated to innovation ….

- Research and development team
- Cluster
- Business incubator
- Professional federations and nurturing structures
- Organization of Textile even

CETI Product Insight

Technological & digital platform

To produce together innovative textile solutions for tomorrow’s uses.
CETI is dedicated to research and innovation through 3 kinds of activities:

• **OWN RESEARCH**
  Investigation of innovative concepts while developing knowledge and pluridisciplinarity skills.

• **COLLABORATIVE RESEARCH**
  Contribution to collaborative R&D research programs thanks to its skilled staff and pilot equipment. Funding as partner or sub-contractor.

• **PRIVATE RESEARCH**
  Participation in private R&D programs on customers’ request.

**Innovation**
**Design**
**R&D Products and Processes**
**Prototyping**
**Sampling**
**Transfer**
TO CREATE NEW MATERIALS: COMPOUNDING AND SPINNING
The CETI owns one of the world’s five platforms for tri-component spinning.
• Test spinnability of new polymers,
• Create functionalized filaments
• Create fine filaments and fibres
• Combine polymers in a filament or in fabrics

TO PROTOTYPE TRADITIONAL TEXTILE STRUCTURES
CETI’s spinning, weaving and coating units offer the possibility for industrial prototyping of traditional textile structures.
In 2014, the integration of “3-D printing” skills positioned CETI as a leader for hybrid 3-D textile composites in this growing market for uses such as the sound insulation of car interiors or fashion accessories (3-D lace).

TO CREATE NEW TEXTILE STRUCTURES FOR NONWOVENS
Thanks to the flexible configuration of its “drylaid” and “spunlaid” pilot lines, the CETI has a capacity to produce demonstrators for textile composites that is unique in the world. Over 100 possible combinations.
ECO-DESIGN

DESIGNING the parameters of eco-design

The use of BIO-SOURCED MATERIALS

RECYCLABILITY

LIGHTENING UP structures (ultra-thin fibers)

The idea of VIRTUALIZING products and procedures
What’s behind the word: bio-based fibers or bio-sourced fibers

- Natural fibers
- Man made fibers, synthetic fibers, bio-based polymers filaments

Bio-based carbon content: fraction of carbon derived from biomass in a product (EN 16575 Bio-based products – Vocabulary)

<table>
<thead>
<tr>
<th>Polymer Type</th>
<th>Carbon Source</th>
<th>Bio-based Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene (PE)</td>
<td>Glucose</td>
<td>100%</td>
</tr>
<tr>
<td>Polyhydroxyalkanoates (PHA)</td>
<td>Oil plant</td>
<td>100%</td>
</tr>
<tr>
<td>Polylactic acid (PLA)</td>
<td>Glucose</td>
<td>100%</td>
</tr>
<tr>
<td>Polyamides (PA)</td>
<td>Oil plant</td>
<td>40% to 100%</td>
</tr>
</tbody>
</table>
The eco-design of a bio-based, biodegradable WIPE using a “design thinking” process.
2 SYSTEMATIC APPROACHES

From cradle to grave
Reduce environmental impact and anticipate health risks

From Cradle to Cradle
Create products that can be indefinitely recycled, either biologically or technically

How to proceed to create new bio-based biodegradable wipes?
Our skills include:
- Material
- Filament
- Fiber
- Textile structure
- Finished product

Our positioning in your market and thematic expectations:
- Medical
- Health and medical equipment
- Sport
- Transportation
- Industry

Our knowledge of the Textile industry at your service:
- Study of the eco-conceived wipe
- Biological polymers
- Connected textiles

Digital design office
Prototyping on a...
MARKET RESEARCH ON THE WIPES

Figure 11: Total Deliveries by End-Uses in 2014 (in square metres)

- Hygiene: 58.0%
- Medical / Surgical: 3.1%
- Wipes for Personal care: 10.3%
- Wipes - Others: 2.5%
- Garments: 0.3%
- Interlinings: 0.8%
- Shoe / Leathergoods: 0.2%
- Coating substrates: 0.7%
- Floor Coverings: 0.5%
- Upholstery / Table Linen / Household: 4.0%
- Air & Gas Filtration: 1.0%
- Liquid filtration: 0.7%
- Building / Roofing: 3.9%
- Civil Engineering / Underground: 2.3%
- Automotive: 1.6%
- Agriculture: 3.0%
- Electronic Materials: 0.3%
- Food & Beverage: 4.4%
- Others: 2.0%
- Unidentified: 0.5%

ANNUAL GROWTH (extract from EDANA)

- medical/surgical: 13%
- wipes for Personal Care: 11%
- wipes - others: 8%

430 000 T/year/Europe
10 millions de m2
WIPES BENCHMARKING ON THE FRENCH MARKET

Identification of raw materials in 4 wipes brands: Pampers, Kandoo, Biolane, Bébé Cadum, AUCHAN.

Wipe 100% viscose

Wipe 100% PLA

Infrared tests made by HEI/ISEN/ISA November 2014: Spectrum of wipes currently in the market.

Conclusion: No wipes using 100% PLA are available on the French market actually.
**RAW MATERIALS PRODUCTION**

Table 11: Type of Fibres used in the Production of Nonwovens in 1,000 tonnes

<table>
<thead>
<tr>
<th>In Fibre-based processes</th>
<th>2012</th>
<th>Δ</th>
<th>2013</th>
<th>Δ</th>
<th>2014</th>
<th>Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000 T</td>
<td>Δ</td>
<td>1,000 T</td>
<td>Δ</td>
<td>1,000 T</td>
<td>Δ</td>
</tr>
<tr>
<td>Viscose</td>
<td>125.3</td>
<td>-4.7%</td>
<td>135.8</td>
<td>8.4%</td>
<td>142.8</td>
<td>5.1%</td>
</tr>
<tr>
<td>Polyester (Virgin)</td>
<td>341.9</td>
<td>-21.9%</td>
<td>337.4</td>
<td>-1.3%</td>
<td>352.9</td>
<td>4.6%</td>
</tr>
<tr>
<td>Polyester (Recycled)</td>
<td>107.9</td>
<td>n.a.</td>
<td>132.9</td>
<td>23.2%</td>
<td>151.3</td>
<td>13.8%</td>
</tr>
</tbody>
</table>

Figure 16: Polyester staple fibre virgin vs. recycled

**BUSINESS MODEL**

- Viscose 1200 €/Tonnes
- PP 1180 €/Tonnes
- PLA 1700 €/Tonnes
<table>
<thead>
<tr>
<th>TYPE</th>
<th>ORIGINE</th>
<th>BIO SOURCED</th>
<th>ENVIRONNEMENTAL IMPACT</th>
<th>BIO DEGRADABLE</th>
<th>COMPOSTABLE/RECYCLABLE</th>
<th>CLEANLINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>viscose®</td>
<td>cellulose</td>
<td></td>
<td>polluting manufacturing procedure</td>
<td>yes</td>
<td></td>
<td>Soft</td>
</tr>
<tr>
<td>tencel®</td>
<td>cellulose</td>
<td></td>
<td>strong carbon footprint</td>
<td>yes</td>
<td></td>
<td>soft, resistant, waterproof</td>
</tr>
<tr>
<td>PLA</td>
<td>starch</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>yes (58°C and humidity)</td>
<td>transparent</td>
</tr>
<tr>
<td>Gaïlène®</td>
<td>starch</td>
<td>yes</td>
<td></td>
<td>no</td>
<td>yes</td>
<td>shock-resistant, soft, easy to dye</td>
</tr>
<tr>
<td>Bioplast GF®</td>
<td>potato starch</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>yes (less than 180 days)</td>
<td>gas-proof (O2 CO2)</td>
</tr>
<tr>
<td>NatureFlex®</td>
<td>Wood pulp</td>
<td>yes</td>
<td>optimization method for reduction</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>viloft®</td>
<td>Wood pulp</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td></td>
<td>soft, flexible, absorbing</td>
</tr>
<tr>
<td>Green™ Polyethylene</td>
<td>Sugar cane</td>
<td>yes</td>
<td></td>
<td>no</td>
<td>yes</td>
<td>identical to polyethylene</td>
</tr>
<tr>
<td>Flax</td>
<td>Flax</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>yes</td>
<td>UV filter</td>
</tr>
<tr>
<td>Hemp</td>
<td>hemp</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>no</td>
<td>anti-bacterial, filters radiation</td>
</tr>
<tr>
<td>Jute</td>
<td>Jute cellulose</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>no</td>
<td>anti-bacterial, resistant</td>
</tr>
<tr>
<td>Ramie</td>
<td>nettle</td>
<td>yes</td>
<td></td>
<td>no</td>
<td>no</td>
<td>anti-bacterial, resistant</td>
</tr>
<tr>
<td>PHA/PHB/PHBV</td>
<td>bacterial origin (starch and sugar)</td>
<td>yes</td>
<td></td>
<td>yes</td>
<td>yes</td>
<td>rigid polymer, resistant</td>
</tr>
</tbody>
</table>
THE LCA APPROACH

Study of environmental problems at each step of a product’s conception

- Biosourced
- Biodegradable
- Eco-friendly during manufacturing
- Bio-compatible/Bio friendly, non-toxic for living entities

RAW MATERIAL

ANALYSIS OF ENERGY CONSUMPTION
- transformation of raw material into a product
- consolidation of the product or its assembly / finalization
- stocking - shipping

USE
- Durability
- Quality
- Functionality

END-OF-LIFE
- Recyclability
- Biodegradability
- Transformable into energy
Even if the compostable wipe’s LCA is generally satisfying, it can be imagined to rethink its end-of-life so recycling could be another option.

The choice of PLA as biodegradable and compostable fibers is relevant.
The eco-design of a product consists of a reflective approach revolving around **the final user** beginning with an **idea** and identifying the **need** all the way to **prototyping the product**.
A way to integrate each important variable of an innovative project:

1/ Describing the context and the role of innovation

2/ Analyzing the key needs and functions anticipated by targeted users

3/ Listing each solution proposed

4/ Defining the players involved

5/ Positioning the offer based on different market segments

6/ Analyzing the pertinence of each offer
FOCUS ON WIPES functionality (uses/needs)

- **FP1**: allows the user to clean his environment
- **FC1**: is pleasant to handle (softness)
- **FC2**: is FC3: consumes little energy and water when manufactured and used
- **FC4**: is recyclable / biodegradable
- **FC5**: is healthy and without danger for the user
- **FC6**: has qualitative criteria that validates the product and facilitates its use
- **FC7**: respects environmental and security standards
Consumer Profile

Profil type

• WOMAN
• Aged between 20-45 years old
• Sensitive to environmental issues (72% vs 38% men)
• Run the house
A RELEVANT FEEDBACK ANALYSIS

- Not favorable
- Slightly favorable
- Very favorable
To combine 2 polymers in a filament or in fabrics

To create new nonwoven structure by the flexibility of the configuration of its lines "spunlaid" and "drylaid" (more than 100 possible combinations)

To Produce hybrid webs

Web formation and consolidation line

Spunbond, Meltblown, Card, Airlay, calander, cross-lapped, hydro-entanglement, needle-loom, oven,
A biodegradable, biosourced wipe with a PLA base used

Prototyped wipes:

- 100 % rayon® (Viscose)
- 70/30 rayon® (Viscose)/PP
- 70/30 rayon® (Viscose)/PLA (linked to the processability of the machines)

<table>
<thead>
<tr>
<th>Trial</th>
<th>Composition</th>
<th>Process</th>
<th>g/m²</th>
<th>MD Resistance N/5cm</th>
<th>MD Elongation %</th>
<th>CD Resistance N/5cm</th>
<th>CD Elongation %</th>
<th>Permeability 196 Pa l/m²/s</th>
<th>Thickness 0.5 kPas (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V 100%</td>
<td>1</td>
<td>50</td>
<td>35</td>
<td>42</td>
<td>18</td>
<td>112</td>
<td>3846</td>
<td>1.25</td>
</tr>
<tr>
<td>2</td>
<td>V/PP 70/30</td>
<td>1</td>
<td>48</td>
<td>30</td>
<td>70</td>
<td>13</td>
<td>148</td>
<td>4204</td>
<td>1.05</td>
</tr>
<tr>
<td>3</td>
<td>V/PLA 70/30</td>
<td>1</td>
<td>48</td>
<td>31</td>
<td>45</td>
<td>13</td>
<td>130</td>
<td>4486</td>
<td>1.49</td>
</tr>
<tr>
<td>4</td>
<td>V 100%</td>
<td>2</td>
<td>61</td>
<td>108</td>
<td>15</td>
<td>37</td>
<td>84</td>
<td>2180</td>
<td>0.52</td>
</tr>
<tr>
<td>5</td>
<td>V/PP 70/30</td>
<td>2</td>
<td>65</td>
<td>88</td>
<td>24</td>
<td>36</td>
<td>115</td>
<td>2354</td>
<td>0.65</td>
</tr>
<tr>
<td>6</td>
<td>V/PLA 70/30</td>
<td>2</td>
<td>63</td>
<td>94</td>
<td>23</td>
<td>42</td>
<td>78</td>
<td>2588</td>
<td>0.6</td>
</tr>
</tbody>
</table>

The results show that compositions made of 100% biodegradable materials have characteristics similar, if not better, to those made with petro-chemicals (PP base).

It is thus technically possible to eco-conceive recyclable or biodegradable wipes by composting. The question of price remains a strong argument for a single-use products.

Validated feasibility – appropriate production lines for manufacturing already exist.
OVERVIEW

Structuring the collective thinking

- Emotional choice
- Technological choice
- Economical choice

Placing products on the markets

- Rationalization of thinking
- Context of the market and solutions

Formalizing the strategic process of access to market

- Systemic approach to innovate
- Multidisciplinary approach
- Including feedback
CONCLUSION OF THE STUDY

A biodegradable, biosourced wipe with a PLA base

Via LCA

Recyclable or compostable wipe
PLA solution retained

Via Design thinking

Technically feasible
Meets consumer needs
The solution to retain focusing on end-of-life criteria

The choice of PLA clearly meets environmental criteria and satisfies the final user. Its success will only depend on the financial commitment of that group.
Benefits of eco-design initiatives

« Eco Design » added value

External target

- Risk of reputation
- Loyalty
- Legislation

Defensive

- Secure supply chain
- Manage costs

COSTS

Internal target

- Stimulate innovation
- Federate team

TEAM

Offensive attitude

SALE

Risk management

- New markets
- Differentiation
- Reputation

Environmental impacts

Recyclability of PLA closed loop
- Eco Efficiency
- Eco Innovation

The purchase extra cost of raw material (PLA) compared to traditional disposable wipes is reduced by as much as the material is recyclable in a closed loop.

- Using production waste
- If Collection industry, recycling of finished products
Search the best solution: COLLABORATIVE INTELLIGENCE

CETI takes part in making textile innovation a major, sustainable & competitive advantage in the market.

"To develop together a collaborative dynamic that will produce innovative textile solutions for tomorrow’s uses."
BLUE PRINT

ECO-DESIGN

The priority axes:

• Designing the parameters of eco-design

• The use of bio-sourced materials

• Lightening up structures

• Recyclability

• The idea of Virtualizing products and procedures

SMART TEXTILE

The priority axes:

• Innovation in electroactive and piezoelectric fibers. To allow textile structures to transform mechanical energy into electrical energy.

• Determination of the optimal structure of a fiber for diagnostic, care, ...

• Durability of the smart textile over time
Thank you

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