# Roads to INNOVATION

2017 EDITION

#6

Editorial

## Integrating circular economy into a new business model is key to its development

**Interview with Christophe NADAL**
Quality & Environment Director at Groupe ERAM

“Groupe ERAM is continuing the work it has been committed to for several years by integrating sustainability issues in its operations. Recently we launched an ambitious and innovative project focusing on two major challenges: one related to technology and the other to economics. This research project aims to include a shoe’s end of life in the design phase; and to demonstrate the viability of a new model based on functional service economy.

When we consider the environmental footprint of a shoe over its entire life cycle, we observe that more than 80% of its impacts are linked to the materials used to produce it. The challenge for our company therefore lies in questioning our consumption of resources.

The circular economy delivers part of the answer as it enables the company to convert its waste into resources that can be used in a new production cycle. There are two prerequisites for this concept fit in with this virtuous circle: closing the logistics loop efficiently, particular when it comes to collection and sorting of waste, and providing advanced technologies and infrastructures to convert old shoes into new raw materials. Today these two prerequisites have not been met for this model to be viable on a large scale. The circular economy is not a business model but a concept for organising industrial processes and procedures. If we want to put it into practice, we need to subscribe ➜

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ECO TLC
L’éco-organisme du textile • du linge • de la chaussure

*This document is available in French*

**Christophe Nadal**
*Quality & Environment Director*
*at Groupe ERAM*

*“When we consider the environmental footprint of a shoe over its entire useful life, we have observed that more than 80% of the imprint is connected to the materials used to make it. The challenge for our company therefore lies in questioning our consumption of resources.”*

to a new business model that meets the conditions needed for it to be viable; this constitutes the whole challenge of efficient design and functional service economy which is aimed at creating value by supplying services.
Improvements to our environmental and overall performance are therefore to be achieved by a technological leap that will allow better separation and recovery of the different materials in our shoes. This means an innovation that will also be accompanied by designing a new model that will no longer link growth and consumption of resources but, on the contrary, will encourage us to use these resources better, for the benefit of the company and in the public interest. ■

## Summary



COMMITMENT

# SPOTLIGHT ON the **Scientific** Committee

*Turning used Clothing, Linen and Footwear (CLF) into new resources: this is one of Eco TLC main ambitions, to meet the targets set in its specifications. To this end, the French Producer Responsibility Organization (PRO) supports each year innovative projects aimed at recycling CLF.*

## REMINDER ABOUT THE PROJECT SELECTION PROCESS

**THE SCIENTIFIC COMMITTEE IS MADE UP OF 14 MEMBERS**
who represent the industry's direct and indirect stakeholders: ADEME, associations and experts (specialist advisors, researchers), representatives from collectors, sorters and recyclers, suppliers, technology centres for textiles and leather.

**THE SCIENTIFIC COMMITTEE HAS DEVELOPED A SCORE SHEET FOR PROJECTS**
that lists 11 different criteria, with scores from 0 (no information) to 4 (very good): environmental benefit of project, economic impact on the sector etc.

**The process consists of two stages:**
the Scientific Committee makes a preliminary selection from among the applications by scoring them according to the different criteria. The chosen candidates are then interviewed by the Scientific Committee.
Following these interviews, the Scientific Committee makes its recommendation for consideration by Eco TLC's Board, which ultimately decides on whether to give financial support and how much.

**SUPPORTED PROJECTS**
As innovation is at the very core of the sector's project, Eco TLC has doubled the budget for supporting R&D projects within the context of 2014-2019 accreditation. Each call for project proposals (available in French and in English) is open to all types of project holders and aims to encourage research into new outlets for clothing, linen and footwear or improvements in various operations that could result in a reduction in processing costs. Every project selected is assisted throughout by a monitoring group (progress meetings and phase validation).

"Eco TLC's Scientific Committee, whose remit is to choose projects that are promising over the medium term in order to provide them with support, has a very effective mode of operation. The methods for appraising the projects and the Committee's selection criteria are based on two concerns. The first is to create solutions that respond to a real need and that will actually allow modernisation of the sector. The second is to then manage to move on from the Research and Development phase to the phase of industrial-scale production. The innovations that have been developed generally involve just a single phase in the sector; a frequent problem is the need to integrate innovations throughout the sector as a whole, if necessary by adapting downstream and upstream phases to these innovations.

## MODERNISING THE SECTOR

The Scientific Committee supports two types of modernisation projects in particular: those that offer a method of recovery for products that were not covered before and those that increase the value added by recycling, in particular by including it in a closed loop.

## A GLOBAL PERSPECTIVE OF THE SECTOR

As the jury is composed of experts with very different but complementary backgrounds, the projects are considered in their entirety. For instance, we would examine the relevance of a project with regard to the challenges of integration in the sector: if it is probable that major disruption will be caused in the upstream and downstream phases (total rethink of the methods for collection or sorting, difficulties in validating outlets, etc.), the project might be reviewed. It might also be the subject of additional research, or even included in experiments like those conducted by the materials sorting committee at Eco TLC. Therefore we encourage product owners to give careful thought to their position in the sector!"

***Philippe BAJEAT,***
*member of the Scientific Committee ADEME**

**6 R&D projects selected following to Eco TLC 2016 Call for Projects:**
**€477,654 dedicated to the development of textile and shoes recycling solutions.**

**ADEME: Agency for the Environment and Energy Management*

# NEW PROJECTS

**CETI** **Project: DELISS**

## *Automated removal of hard points from cotton goods*

**Thierry LE BLAN**
*Technical Director*
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CETI CENTRE EUROPÉEN DES TEXTILES INNOVANTS

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INTERVIEW **THIERRY LE BLAN**

***How did your project get off the ground?***

Our concept for automating the removal of hard points is part of another project: that of recycling cotton in order to recreate textile products with high added value; in any case more substantial than products designed today from recycled cotton, such as mattresses, insulation panels etc. For our part, we want to recreate first the yarn and then quality clothing from used cotton clothing. However we encountered the problem of removing hard points: removal of sewing threads that are not cotton and of hard points (buttons, zips, etc.), called 'contaminants', from this raw material, i.e. the cotton that we want to extract in order to recycle it. At the present time, removal of hard points is done by hand, which is an obstacle to cotton's recyclability, and we want to make it semi-automatic or even to automate it fully, which would mean a gain in efficiency and thus in profitability for the entire recycling industry.

***When did the project start out?***

Our organisation, the Centre Européen des Textiles Innovants (CETI), based in Tourcoing, was contracted just over a year ago to work on cotton recycling. It was a major French retailer who approached us, as they hold the view that supplies of cotton will become scarce as a result of both the decline in cultivated areas and the negative environmental impact of its cultivation. Thus there will be a growing market in future for recycled cotton but it comes up against the issue of hard points removal, which is too expensive to do manually and therefore needs to be automated. We therefore approached Eco TLC, which recently demonstrated their confidence in us with a partnership with the ICAM School of Engineering (Institut Catholique des Arts et Métiers) involving a project aiming to specify the engineering for automating removal of hard points from cotton. The latter is one part of a broader project and that will last over three years in conjunction with other organisations, which is aimed at developping overall cotton recyclability. Once the part of the engineering project, backed over 18 months by Eco TLC, has been brought to completion with ICAM, we will embark on a second 18-month phase, during which we want to develop a machine to remove the hard points from cotton. This second industrial part of the project may be the subject of a second project proposal with Eco TLC! This will need to be considered in the context of what we manage to do in the global project.

***What will the research and development work at ICAM entail?***

First of all we need to carry out a report in the form of a review of current literature on the various existing methods for removing contaminants. Afterwards we will move on to modular research involving searches, cutting, handling, etc. By pooling our textile knowledge with the expertise of this engineering school, we are optimistic that we will be able to find the best components to combine to create this hard points removal machine.

© CETI

## PROJECT AT A GLANCE

**GOAL:** Researching and developing either automatic or semi-automatic procedures for removing hard points or for disassembling clothing

**DURATION:** 18 months (until April 2018)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 87,154

**TYPE OF TLC COVERED:** Used textiles


© CTC

**CTC*** **Project: THERMICUIR**

# *Recovering used leather by generating energy*

INTERVIEW

## RÉGIS LETY

***How did your project get off the ground?***

We are a professional economic development committee, i.e. we are responsible for public service mission for the French leather industry: hide collectors, tanners, tawers and manufacturers of shoes, leather goods and gloves. In particular, our responsibilities include environmental oversight, which involves monitoring processes for recycling and waste recovery. The Thermicuir project is part of this remit. It follows on from another project backed by Eco TLC and managed by Air and Soex that aims to extract the raw materials from old shoes made of leather and rubber. Once the leather has been extracted and shredded, it is not (yet) possible to use it to recreate a raw material equivalent to leather. On the other hand, we observed that this shredded, used leather has one significant advantage: its calorific value. To put it briefly, when it is burnt it is possible to recover heat from the energy it contains. Our goal: to provide an alternative to landfill for old shoes with recovery in the form of heat that can be used directly on small-scale industrial sites, such as tanneries and taweries.

***What will this project involve?***

In addition to observing that shredded old leather had a high calorific value, our monitoring work led us to discover the existence of a new procedure, or, at the very least, a procedure that has been adapted on a reduced industrial scale and is therefore within our reach: gasification. It consists of burning waste in an oxygen-starved environment (as opposed to incineration) at a very high temperature in order to produce a gas called "syngas", which has a very high calorific value. It is a different processing method to incineration and one which gives appreciably better yields in terms of heat recovery. We are therefore going to investigate the potential of this method, and promote it among the tanners we work with so that they can use it in order to reduce their energy costs and their $CO_2$ emissions by substituting shredded leather waste for the fossil fuels that are burned on site, and hence closing the loop!

***What do you have planned next?***

We are in the process of completing the analyses for waste leather in order to confirm their calorific value. Then, ideally, we will recover one ton of shredded leather from our partner AIR (Soex in Germany) for the purpose of conducting our gasification tests between May and July. We plan to deliver our results in September and then to conduct a technical and financial feasibility study of the recovery process. The idea is to make an announcement to the sector in early 2018 about gasification methods, sources of supply and vendors of machinery. So we will be promoting a closed loop where, in an ideal future, industries will supply their own energy themselves, using waste from their production. This method of gasification exists on a large scale at leather manufacturers in Scotland, where the return on the initial investment was soon achieved and the savings in energy today amount to 80%!

**Régis LETY**
*Sustainability Consultant*

CTC

*Sorting line.* © CTC

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## PROJECT AT A GLANCE

**GOAL:** Recovering heat from waste leather from end-of-life shoes

**DURATION:** 18 months (until April 2018)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 53,250

**TYPE OF TLC COVERED:** Leather shoe uppers

**Centre Technique du Cuir*

**Loïc VINCENT**
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**GROUPE ERAM** **Project: DESIGN FOR REPAIR**

# *Designing to improve recycling*

INTERVIEW **LOÏC VINCENT**

***How did your project get off the ground?***

In 2010, the amount of shoes in France sent to landfill or incinerated due to lack of recycling facilities rose to 2,400 tons, for 8,100 tons collected. Having observed how difficult it is to recycle shoes and considering the environmental footprint caused by their manufacture, we wanted to promote eco-design and recycling of shoes in the Groupe Eram. As the seller of 32 million pairs a year in our 1,300 sales outlets, we want to reduce and recover waste of shoes in the context of saving resources.

***What does your project involve?***

We conducted research into eco-design for shoes, from the aspect of the product alone. We established that up to 40 different materials are found in shoes and they are all assembled in different ways (stitching, gluing, with tacks, interference fit), which makes it more or less impossible to recycle them easily, as it is not profitable to separate all these materials. What is more, there is currently no solution available today for upcycling (= recycling without losing value or with added value). When it comes to eco-design, it is necessary from the outset to address the constraints regarding the product's end of life in order to make separating the individual components simpler. This is the aim of the project that we are undertaking with Eco TLC: Design for repair. The goal is to develop a new procedure for making shoes, so that once they reach the end of their life, it is easy to deconstruct, repair and therefore recycle them.

***How do you intend to proceed?***

Following the drafting of specifications, which will be ready in September 2017, we are going to hold brainstorming sessions in order to find the most ingenious solutions that are best tailored to requirements. Our partner, the research group Rescoll, which specialises in glued assembly, will be supporting us throughout the project. They will be establishing a desconstructable glue system. The glue, which will be used to assemble the parts of the shoe, will allow us to separate the different elements when we want to. We are expecting the prototypes to be ready by the end of 2018.
We will also be working on other methods of assembly that permit easy separation of components. Following this, we will be organising a series of user and wearer tests in order to try out the product. Finally, once the idea has been implemented ready for mass production, we will conduct customer trials in store.

***What further developments are planned then?***

This project undertaken in conjunction with Eco TLC also includes research into engineering for recycling leather. The aim is to identify solutions for recovering leather by recycling our eco-design product, In this case we will be working with an experienced tannery that has an appreciation of the environmental issues.
This development work is a key part of a more comprehensive project by the Groupe Eram that aims to promote eco-design and recycling. We will be collaborating with other brands in the group, who will help us with implementation in stores and with the marketing plan.

## PROJECT AT A GLANCE

**GOAL:** Developing a new procedure for design and manufacture that will permit easy deconstruction of all components in an end-of-life shoe

**DURATION:** 36 months (until January 2020)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 87,325

**TYPE OF TLC COVERED:** Leather shoes, rubber or leather soles


*Left and above: Shoes production line.*
© Studio Graphique Groupe Eram

**1083** (SARL MODETIC)

# *Making new jeans from old ones*

*Old denim textiles.*
*Frayed material.*


INTERVIEW

**DAVID LEROMAIN**

***How did your project get off the ground?***

Modetic has been a distributor for ethical fashion brands for 10 years and today has four shops in France (Grenoble, Lyon, Nantes and Romans). In 2013, we established our own label for jeans and trainers: "1083". This brand name reflects the distance in kilometres between the two towns in France that are farthest apart: our way of emphasising production in France. Production of our jeans has been 97% reshored to France. Regrettably we are the only manufacturer of jeans made entirely in France, i.e. starting from the bales of cotton. To achieve 100% reshoring of our jeans production, we are looking for French metal button and rivet manufacturers and for an alternative to cultivated cotton, which needless to say does not grow well in France. As millions of pairs of jeans reach the end of their useful life each year, this represents a tremendous potential for cotton. This is why we have decided to conduct research into how to manufacture jeans that are really made from old jeans: this is the goal of our project that is backed by Eco TLC.

***How did things progress?***

Starting in 2015, we began by cutting up the jeans and measuring the length of the reclaimed fibres. Then we met up with some garnetters to try and obtain the longest possible recycled fibres in order to recreate cotton yarn in partnership with French open-end spinning mills. We do not allow addition of polyester, which would provide greater resistance for the yarn, but, as with any blend, this would make subsequent recycling more complicated and we would be getting further away from our closed loop policy. Our first lab tests enabled us to succeed in reconstituting a yarn that consisted of 50% recycled fibres blended with 50% organic cotton. This is an encouraging result but we intend to do much better; we still have several other avenues to explore!

***What approaches will you be pursuing?***

We are investigating the option of introducing offcuts from our production. Garnetting this new cotton will offer longer fibres. And where the shortest fibres are concerned, we are endeavouring to recover them too by extracting the cellulose they contain, for example. We are convinced that it is possible to produce a 100% recycled yarn in France. If we succeed, we will then embark on the commercial production phase, which will be the subject of a second Eco TLC project proposal.

*From used jeans to recycled fiber.*


**David LEROMAIN**
*Textile Engineer*

modetic
prêt-à-porter vos valeurs

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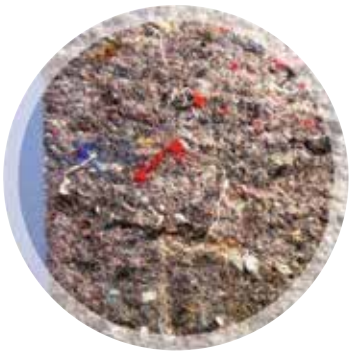
## PROJECT AT A GLANCE

**GOAL:** Recreating a yarn with cotton from old jeans

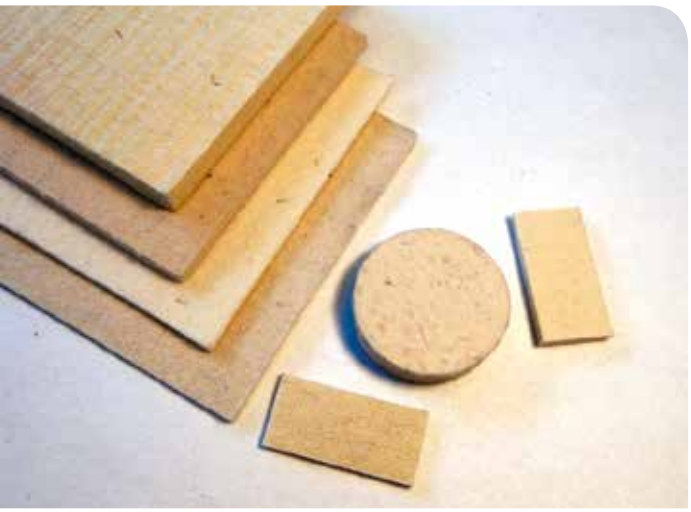
**DURATION:** 19 months (until October 2018)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 41,000

**TYPE OF TLC COVERED:** Old denim textiles



*Meedle-punched underlay made from recycled fibers.* © SILAC industrie



*Natural felts.* © SILAC industrie

**SILAC INDUSTRIE** **Project: ECO3F**

# *Insulating cars using recycled textiles*

INTERVIEW **VALÉRAN HIEL**

**Valéran HIEL**
*President*
© SILAC industrie

SILAC *Industrie*

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***How did your project get off the ground?***

Silac is a company with a long history dating back to 1837, when it was founded in Charentes and manufactured technical felt for the slippers sector. We have long used textiles for automotive insulation in the underlay, the parts that are less technical. However, where technical parts are concerned, in particular acoustic insulation, we have previously used so-called "premium" plastic materials. Then during discussions with our partner Wecosta, we noticed that the textile materials had interesting acoustic properties and that we could incorporate old clothing, linen and shoes in our insulating materials in order to recycle them. This is how the idea for Eco3F was born, sound insulation for cars that is 100% environmentally friendly and technical.

***What are the challenges facing the project?***

There are a number of difficulties: first, even if we face a market – for automotive insulation – that is already established, this sector is not particularly interested in recycled products, on the contrary. Its foremost priority is low prices and we therefore need to offer a product at the same price, at least, as the product made with the "premium" material. Then again, the supplies of recycled textiles have several disadvantages: the quantity and quality vary; they are not cheaper than the raw material since they need to be collected, sorted and garnetted (which is carried out by our other partner Minot Recyclage); and they are more difficult to work with (cotton may catch fire, fibres may be damaged, etc).

***How do you intend to proceed?***

Our formulations are ready. We already have the machinery, which is a great asset in testing the acoustics, for example, and in guaranteeing our customers an insulation thickness ratio. As soon as the project is launched we are going to start laboratory experiments in all the areas, where we are not experts: odour, absorption, fire resistance, fogging (tendency to cause condensation), etc. Then we will move on to the factory tests.

***What obstacles do you foresee?***

The main difficulty is in the binding agent that enables the thermoformed material to maintain its shape. Until now, binding agents have only been made with petrol-based products, but we want to test "green" thermoplastics (maize-based for example) to bind our material that is based on recycled textiles. We do not yet know if we will succeed but our goal is to produce a 100% eco-friendly prototype (recycled clothing, household linens and shoes and binding agent in eco-friendly plastic) at a price that is equivalent to that for a plastic product.

***And what happens once the project reaches completion?***

In this case, we will be in a position to offer this eco-friendly alternative to our customers in the automotive industry, in the hope that we can convince them of the importance of recycled materials as a substitute for harmful plastics imported from China that are still the norm today for French automotive felts. We are also going to make a pitch to European customers such as Germany or Sweden that are more receptive to recycled products even when slightly more expensive. As long as oil is cheap, manufacturers will have little interest in recycled textiles, but interest will grow once oil prices start to rise.

## PROJECT AT A GLANCE

**GOAL:** Making a range of acoustic insulation for the automotive industry using old textile materials

**DURATION:** 18 months (until September 2018)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 168,925

**TYPE OF TLC COVERED:** Used textiles

# PROMISING PROJECTS

## FILATURES DU PARC

# *Twofold success in recycling wool*

INTERVIEW

### FABRICE LODETTI

***What were the different stages in this initial project backed by Eco TLC?***

We had already filed a first patent on our own for creating a yarn from used knit fabrics. As wool is a scarce and expensive product, we wanted to increase our resources for this material and to recover the wool from coats. However at that point we did not know how to recover fibre from these coats, which were made of woven fabrics, making it much harder to unravel than knits. It was then that we turned to Eco TLC for their support in order to create a 100% recycled yarn from old woollen coats. Our partner Le Relais supplied us with around a dozen tons of black coats composed of 90 - 100% wool, and we began experiments that took two and a half years. By the end, in April 2014, we had created the yarn we were aiming for!

***So it was successful? What was happened to this yarn?***

The success was twofold, as, in addition to managing to meet the challenge we had set ourselves of developing an innovation, filing a new patent and contributing new ideas for recycling, we discovered that the fibres from recycled woollen coats had some interesting properties, in particular that they complemented the fibres we unravel from knit fabrics! Now that we have mastered the technique for these fibres, we can make four different yarns based on these two raw materials obtained from recycling. They can be used, for instance, to make flannel and different varieties of wool products for clothes and furnishings.

### PROJECT AT A GLANCE

**GOAL:** Reproducing wool yarn for woven fabrics in the same quality as virgin fibres

**DURATION:** 18 months (completed in April 2014)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 100,000

**TYPE OF TLC COVERED:** Woven wool fabrics chaîne et trame

**Fabrice LODETTI**

*Manager of the family-owned company Les Filatures du parc*

© Raphaël de Bengy / Hans Lucas

© Estelle de Poulpiquet

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## LE RELAIS — Project: EKOROOM

# *Acoustic insulation for buildings made from recycled textiles*

INTERVIEW

### VIANNEY SARAZIN

***What were the different stages in this project?***

From April 2015 on, we started working on the composition of single thermoformed tiles, imagining that we would be able to achieve the required flatness. However we realised that we would need to make two parts: a felt for the acoustics and another for the structural part with geometry for flatness. We also had to cover the whole with a finishing web. We took on responsibility for the supply and manufacture of the felts with the garnetting and lapping, while our partner Wecosta handles the thermoforming.

***What difficulties did you have to resolve?***

In the second phase of testing in April 2016, we established that the textile fibres were adhering to the oven conveyor belt and that it was difficult to handle the workpiece without bending it. This meant we had to introduce technical webs to avoid this problem. During the 3rd phase of testing in November 2016, we assessed the potential

**Vianney SARAZIN**

*Production Manager*

© Le Relais

*Thermoformed plates.*
© Vianney Sarazin

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**PROJECT AT A GLANCE**

**GOAL:** Developing tiles for suspended acoustic ceilings from recycled textiles

**DURATION:** 18 months (extended until September 2017)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 169,740

**TYPE OF TLC COVERED:** Used textiles

of needle-punched felts but these tests went to confirm the advantage of the thermobonded felts, which are more satisfactory from the technical aspect. Finally we conducted tests for resistance to deformation, which did not prove satisfactory. As we have not yet found a method to ensure adequate bonding strength between the structural part and the acoustic part, we will embark on a 4th phase of testing.

***What will it involve?***

We will test adhesion between the two parts with various solutions we have identified. Then, using the samples for the finishing web that we procured, we will validate the protective web, fire resistance and the overall product acoustics, of course. Afterwards we will verify the homogeneity of our tiles on an approximately 20 m² ceiling. We hope to have a finished prototype by the end of May 2017 in order to then sound out the market with a product we can demonstrate!

**Hugues BROUTÉ**
*Product Manager*

WECOSTA
WTX & SEKISO

**WECOSTA** **Project: SILENCIO**

# *Striving for the most eco-friendly and efficient silencer*

©Wecosta

*Up right and above: Silencer.*
© Wecosta

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INTERVIEW **HUGUES BROUTÉ**

***Have you been able to develop a prototype?***

Our first prototype was released in October 2016. It made it possible for us to reposition ourselves from the aspect of effectiveness (particularly acoustic), when compared with our competitors: of ten products with the same function, ours, which is just a prototype, came second! So we are optimistic that we will be in first place once the project has been completed.

***How much progress have you made in your research?***

At the same time as the factory tests, we started a design process with a partner in Lille. The conclusion reached in our research was that it was necessary to create two versions of our silencer: one for housing being renovated and one for installing in new housing as "plug and play" in ventilation ducts. Both these types of specialist silencers will lend us greater credibility than our rivals, in addition to the fact that the silencers are made from eco-friendly sources. The silencers already on the market, which are composed of multiple materials such as plastics, metals and foams, are available in diameters of 80 and 125, and our product will be suitable for all pipework irrespective of size.

***What projects do you have planned?***

As a result of the feedback we learned during benchmarking of the initial prototype, we are in the process of finalising a second product, which is 90% complete and will be more robust, have an improved appearance and will incorporate end-to-end environmental accountability. We are going to present it to potential distribution partners and we urgently need to progress to the marketing phase, even though we are determined to take our time in order to deliver a product that satisfies requirements and that offers maximum efficiency.

**PROJECT AT A GLANCE**

**GOAL:** Developing an acoustic silencer from recycled textiles for ventilation in homes

**DURATION:** 18 months (until September 2017)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 153,125

**TYPE OF TLC COVERED:** Used textiles

**SYNERGIES TLC** **Project: AUTO-TRI**

# *Identifying the components of clothing, household linen and shoes*

INTERVIEW

## THOMAS FRAINEUX

***What progress has your project made over the past year?***

Following our research work with our engineering partner Valvan, last December we moved on to the first real trials, the results of which proved to be conclusive only in one aspect. Experiments with the colours and wool/acrylic blends will in fact make it necessary for us to conduct additional tests. Experiments were carried out on a prototype and not on a production machine as was intended at the outset. The sensors used are nonetheless the same ones.

### PROJECT AT A GLANCE

**GOAL:** Designing and developing a new sorting method for the purpose of selecting secondary materials not destined for the second-hand clothes trade

**DURATION:** 9 months (until December 2017)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 44,960

**TYPE OF TLC COVERED:** Cotton/polyester/acrylic/wool textiles

***What was the outcome of these tests?***

This first phase involved identifying the constituents of blended garments containing cotton, wool, acrylic, polyester etc. in varying percentages. We ran our different blended textiles through our machine, for example a wool/acrylic blend according to the ratio, 100%-0%, 30%-70%, 50%-50% and 0%-100%. Most of the identification work performed by the machine proved to be conclusive, but there is nevertheless a not inconsiderable amount of clothing where the data from the output of the machine differs from the details of blends given on the label. In order to discover who is in the wrong, we have started a series of chemical tests in the lab that should tell us whether our machine made the error or whether the label was wrong, by specifying a higher percentage of wool than was actually contained in the garment, for example.

***What stages are planned next?***

We are slightly behind as we have to wait for the results of the laboratory tests, which arrived in April. We have launched a second series of experiments in May in order to identify materials and, this time, colours too.


*Valvan Machine.* ©Synergie TLC

**Thomas FRAINEUX**
*Development and Marketing Manager*

SYNERGIESTLC

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**PRÉMICES AND CO** **Project: PIERRE PLUME**

# *We keep on because we believe in it!*

INTERVIEW

## AMANDINE LANGLOIS

***What stage have you reached now?***

We're making progress after experiencing a delay following something of a disappointment: the collapse of our partner last July. We are a design agency specialising in the circular economy, and in order to bring this project involving stylish sound-absorbing materials to a successful conclusion, we fundamentally needed an operations partner: for research and development, procurement and industrial production.

***How do you recover from this setback?***

This news could have jeopardised the project but we had the valuable support of Eco TLC, who reaffirmed their confidence in us to continue with a new partner. After searching we finally found a very promising partner in a manufacturer. They have a large number of machines and, most importantly, they have extensive experience. We are currently involved in discussions with them about the exact terms of the agreement.


*From left to right: Amandine Langlois, Camille Chardayre and Jérémie Triaire, Prémices and Co co-founders.* ©Ms

premices and co

pierreplume®

***What progress have you made in the meantime?***

We used the time to work on the marketing aspect, on brand identity. The product name "Béton de chiffon" ("Rag concrete") has now been changed to "Pierre Plume" ("Featherweight stone") for a more high-end positioning, and our "Collectif Prémices" agency has been renamed "Prémices and Co".

***What are the next stages?***

We're going to reschedule the first preproduction runs. These prototypes have enabled us to make progress with the technical trials for fire resistance and acoustics and tests on new colours. It is still too early to talk of deadlines but we are eager to conclude the partnership agreement and see the first prototypes!

*Pierre Plume© product setting.*

**CONTACT**

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**PROJECT AT A GLANCE**

**GOAL:** Creating a decorative sound-absorbing material from recycled textiles

**DURATION:** 24 months (extended until December 2018)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 49,290 + € 40,000

**TYPE OF TLC COVERED:** Used textiles

**Marc GALMICHE**
*Industrialization Officer*

**MINOT RECYCLAGE TEXTILE**

# Deciding on the right investments

INTERVIEW **MARC GALMICHE**

***What progress have you made over the past year?***

We experienced a delay as a result of changes to the technical methods. We realised that the completed tests overestimated the amount of hard points found in the garnetted stock. There are at least two reasons for this: during maintenance work I observed that the machines had a tendency to accumulate heavier objects in places that are sometimes inaccessible. These amounts of hard points had not been identified and taken into account in the study. On the other hand, the amount of hard points from press studs and zips was wrong. We did a calculation of the press studs, zips and rivets in about 250 kg of jeans and realised they had been overestimated in the first tests. Our first experiments were incorrect overall.

***And what about the proportion of dust?***

We have succeeded in defining, in conjunction with our partner laboratory, a reliable procedure for extracting dust from our products. We have fully succeeded in correlating the amount of dust found in the product with the amounts of substances entering used textiles. However we have not yet invested in a solution for improving extraction of dust. The methods are familiar and are sometimes combined with extraction of the hard points. However we have a limited budget and we therefore need to set priorities.

***Which solution are you tending towards?***

There won't be a single solution. We will need to combine several methods to make the system efficient. We have invested in an innovative magnet system that will make extraction of trapped articles easier. In a second phase, we are also planning to invest in a cyclone separator based on the results of the magnet system.

*Defibrillating machine.*

*Frayed material.*

**CONTACT**

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**PROJECT AT A GLANCE**

**GOAL:** Optimizing a process of end-of-life textiles to achieve a better percentage of used textiles in the garnetting process

**DURATION:** 12 months (until September 2017)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 38,254

**TYPE OF TLC COVERED:** Used textiles

# SUCCESS STORIES

**MAPEA** **Project: ÉCO-CHARGES**

## *Recycling polycotton to make plastic*

INTERVIEW **RENÉ GENILLON**

*MAPEA REGAFIB 53 moulded pieces: racquets, tablet and cup-holder.* ©Mapea

***How did your project come about?***

MAPEA is a consultancy and research firm specialising in the formulation of plastic materials. We adapt materials for our customers' specific uses but since the late 2000s we have given priority to creating our own materials. Based on the need to recycle large amounts of existing plastics, in 2010 we sought to recover them by incorporating waste packaging or polyester textiles in a mix that we called REGALEX. It was only in 2012 that we became aware of significant accumulations of used cotton/polyester (or polycotton) blended textiles and the difficulties involved in recycling them. Sending this waste to landfill is unacceptable! This gave us the idea of using these textiles as a fibrous filler for plastics, mainly polypropylenes and polyamides. It is current practice to incorporate fibres, in particular glass, in plastic but our remit was to consider that by recovering this textile waste or these arisings, we could satisfy the environmental aspects as well as the technical or economic aspects. Of course, a number of difficulties were anticipated: the need to avoid degradation of the cotton under the influence of heat; the need to prepare and densify the textile; the constant concern about keeping costs down etc. We therefore responded to several calls for project proposals, in particular from Eco TLC, and from ADEME, in order to elaborate this process and to allow us to develop plastics materials reinforced with cotton/polyester blend fibres.

***What were the different stages in the project?***

We found a partner to supply textiles, ARMOR-LUX. We provide them with a solution for recycling their workwear, and in exchange, they supply us with a raw material that is 100% cotton/polyester and cleaned of the hard points (buttons, etc.). We have also identified a downstream partner, PLASTIGRAY, a firm which processes injection-moulded plastics and which allowed us to conduct tests on its machines - initially for simple items and then more complex ones – in order to verify the appropriateness for moulding, output, consistency of production, etc. During this project, we also had to allow a stage for preparing the used clothes, in particular developing the densification process. In fact, it is only once the polycotton textiles are compacted that they demonstrate the properties required for processing them. This R&D work resulted in a new range of plastics materials, called REGAFIB, made up of polypropylene and polyamide 6, reinforced with textile fibres taken from this process of recycling and recovery. It was here that the partnership with Eco TLC came to an end.

***What became of this plastic afterwards?***

We completed a study that confirmed the potential markets for use of these materials: the automotive and engineering industries in general, industrial packaging apart from food, sports and leisure goods. We now have our sights set on industrial-scale production and marketing of these materials to plastics manufacturers that supply these sectors. Up until now we only had prototypes to present, but our partner PLASTIGRAY has decided to include REGAFIB in one of its projects for CORNILLEAU, a major company that supplies articles for table tennis! The brand has identified a technical interest in incorporating textile fibres in its products. Our material has therefore been selected for current moulding of 200,000 to 300,000 racquets a year! We now have an actual product, and a fine one at that, which will allow us to work on marketing REGAFIB to a range of diverse customers – provided we can find the necessary financial resources.

### PROJECT AT A GLANCE

**GOAL:** Recycling of cotton and polyester fibres for use as reinforcement in the plastics industry

**DURATION:** 21 months (until December 2015)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 116,000

**TYPE OF TLC COVERED:** Cotton and cotton/polyester textiles


**René GENILLON**
*MAPEA Manager*


### CONTACT


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**SPORALTEC** **Project: ECTOR**

# *Very first eco-design knit trainers made in France*

© AgenceAir

**Olivier PIGNET**
*Project Manager*
*Sports & Health Innovation*
© Sporaltec

SPORALTEC
SPORT INNOVATION CLUSTER

**CONTACT**

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INTERVIEW **OLIVIER PIGNET**

***Who is Sporaltec?***

We are a cluster, that is to say an organisation that works like a competitiveness cluster, dedicated to innovation in sport (along with its health and well-being aspects) in the Auvergne-Rhône-Alpes region. We bring firms from the sports sector together, namely large manufacturing groups such as Babolat or Salomon, smaller-sized companies through to start-ups, research laboratories, universities and technology centres. Our goal is to assist them with their innovation projects in order to help them grow. We offer three types of services: public relations, networking and implementation. We help them in promoting and extracting value from their projects, we keep them informed by monitoring the latest technological advances and organising seminars and we encourage them to meet up and collaborate together. We also provide them with support in their innovation projects by finding manufacturing and scientific partners, in fund-raising and in development on an international scale.

***How did the Ector project get off the ground?***

In 2015 we singled out Eco TLC's call for project proposals and in view of our members' specialisation, we thought that some of them would benefit from this by pooling their expertise. We then put compatible companies in touch with other - Insoft (design and manufacture of eco-design shoes) and Richard Frères (design and manufacture of orthopaedic and medical textile materials). Together we worked on the business case for a 100% eco-design shoe, which was approved by Eco TLC in late 2015. The project got off the ground in February 2016. Sporaltec is responsible for the coordination and the interface with the producer responsibility organisation. All research and development studies in turn were conducted by Insoft and Richard Frères.

***How did things progress?***

Initially, Insoft had to work on sourcing the recycled yarn. This had to be a product of recycling and have good enough technical characteristics to be able to knit it. Then this yarn was tested in the machine by Richard Frères in order to produce the first prototypes of the shoe with knit fabric. At the same time, Insoft continued its work on the shoe design (colours, selecting soles made from recycled rubber, etc.). After numerous experiments and discussions between both companies, the final prototype, given the name of "Ector", was successfully introduced in June 2016. We then moved on to fund-raising and promotion, with an Ulule crowd-funding campaign with pre-orders for shoes. This campaign was really successful since we were hoping to have pre-orders for 100 pairs but Insoft received over 200 orders! We have also attended some trade fairs, in particular Made In France in Paris, with plenty of positive feedback. Now the Ector shoes are in the process of being manufactured and they will be shipped to their owners as from April 2017. They will also be available for sale on the Insoft website and we are looking for resellers. With summer soon upon us, we are fairly optimistic that the eco-knit trainers will be a resounding success!

## PROJECT AT A GLANCE

**GOAL:** Developing a model for an eco-designed shoe with the upper in a knit fabric

**DURATION:** 12 months (until March 2017)

**LEVEL OF SUBSIDIES FROM ECO TLC:** € 44,663

**TYPE OF TLC COVERED:** Yarn made from recycled plastic and recycled rubber

MATERIALS SORTING COMMITTEE

# Endeavouring to produce a more competitive recycled raw material

*To increase recycling of end-of-life textiles, we first need to classify the raw materials they are composed of before being able to process them into new raw materials. As textile components are concerned, it is either a matter of reproducing wool, cotton or polyester yarn, or of incorporating blended fibres in applications termed non-woven (felts for example).*

*The goal of the experiment conducted by the Materials Sorting Committee was to examine the technical and economic process in order to assess what interest there could be for Eco TLC to support the activity of sorting used clothing, linen and footwear (CLF) in order to deliver wipers and knits for garnetting more efficiently, for instance.*

## GOOD TO KNOW

*The Materials Sorting Committee was set up in 2014 to identify the different categories for additional sorting to be performed in the sorting centres for end-of-life CLF. In 2015, the committee proceeded with a call for research project applications, the result of which led to setting up of "Trimaille" (sorting of knits) with Synergies TLC in 2016, and the projects backed by FEDEREC* member companies: BIC, Framimex, KFB Solidaire, Le Relais and Provence TLC.*

## EXPERIMENTAL PROCESS

Once Eco TLC and each operator had signed the agreements regarding the experiments, production was organised in a dozen selected workshops. Overall monitoring was undertaken by the firm RDC Environment. For example, in Boulogne-sur-Mer, KFB Solidaire is involved in two experiments, one focussing on used CLF for sorting and cutting into wipers and one for knits that are sorted according to the material and destined for garnetting.

## SORTING PRODUCTS IN A BROADER NUMBER OF CATEGORIES

The experiment consisted of carrying out a second sorting, after a first sorting where reusable materials were separated from non-reusable materials. This second materials sorting was for knitted articles depending on whether they were mostly composed of wool, acrylic or cotton. Where the articles mainly composed of cotton were concerned, the experiment involved cutting into wipers; 15 categories were selected out of the 24 established in the list used by the profession, from sweatshirt fabric to velvet and including light/dark-coloured T-shirts and white jersey.

## MONITORING THE PROCESS

KFB Solidaire carries out all production steps through to packaging for wholesale customers for wipers or customers specialising in garnetting. Each step in production is identified and outcome is measured. If necessary, some parts are tweaked and reviewed together with RDC Environment and the different project owners during the course of the experiment, depending on how each one progresses. Around 80 tons of wipers and 54 tons of knits for garnetting were sorted in three months by six people at KFB Solidaire. Today, sorting is essentially carried out by hand; few tasks can be automated given the current state of technology. Nevertheless machines are being developed, including optical scanning of the materials composition. Sorting is done by reading the labels, but this method has several substantial limitations since labels are missing from 40% of products, are illegible or not reliable. In the end, it is the sorters' experience that overcomes this problem: they manage to sort best using the handle of the knits. And the fully sorted textiles delivered to the garnetting customer prove to be of excellent quality. Without anticipating the final results of the experiment in late 2017, the initial stages have been very encouraging.

**FEDEREC: Fédération Professionnelle des Entreprises du Recyclage (French Association of Recycling Companies)*

# PROMOTING

## A DIFFERENTIATED SCALE
## *to encourage brands to think out of the box*

### THE POSITIVE INTENT OF THE ECO-MODULATION SCHEME

*'Eco-modulation' means reducing or increasing contributions for manufacturers and retailers to encourage them to adopt an ecological approach (with the goal of extending the life of products, reducing waste and making recycling easier). A project developed by the Producer Responsibility Organisation.*

"The more I take eco-design criteria into consideration when I am producing new clothing, shoes or household linens, the less contributions I have to pay the producer responsibility organisation": this is the logic behind the differentiated scale based on environmental critera. The reverse can also apply, by way of penalties to dissuade distributors from using certain materials and from manufacturing articles that are difficult or impossible to recycle. This logic is driven by different criteria defined early on by the producer responsibility organisation in conjunction with representatives from companies. A round-up of the initiatives taken by Eco TLC in this area:

***Jean-Luc BARTHARÈS,*** *Director of Members Relations and R&D at Eco TLC*

#### SEVERAL STAGES IN ECO-MODULATION

The first eco-modulation of the scale was implemented in 2013 and aimed to encourage use of recycled materials obtained from post-consumer clothing, linens and footwear (CLF) to manufacture new CLF, by awarding a bonus of 50% of the contribution for the article in question. Four years after its introduction, the results are very disappointing since this eco-modulation only benefits one hundred thousand articles. In fact, the financial incentive has proved to be very limited for registered members, on account of the very low rate of the basic contribution (0.7 eurocents on average). But first and foremost, it appears that incorporating recycled materials from CLF mainly involves offcuts from production. Eco TLC has therefore created a second eco-modulation category for products incorporating materials from production offcuts, pre-consumer CLF. Eco TLC has strong hopes for this second eco-modulation as numerous companies, keen to economize on raw materials, are already willing to use production offcuts. This eco-modulation came into effect in 2017 and the first real results cannot be expected before 2018, or even 2019, considering the amount of time needed for manufacturers to adjust their production to these new measures.

#### MORE SUSTAINABLE SHOES, PULLOVER, T-SHIRTS, JEANS AND SHEETS

Furthermore, two other forms of eco-modulation will apply from 2018: one of them already voted on by Eco TLC's Board concerns the durability of shoes, the other concerns the durability of three product segments, which represent considerable volumes of distributed articles: jeans, T-shirts and sheets.
As regards shoes for example, two criteria have been selected: abrasion resistance of the sole and tearing strength between the upper and the sole. If the standards selected for these criteria are reached or surpassed, the contributions for the corresponding products will benefit from a discount of 75%. The same applies to textiles and household linens: sustainability this time is assessed in relation to resistance to abrasion and colour fastness. This lever should allow improvements to the intrinsic quality of products put on the market and possibly allow their useful life to be extended.

*Chaussettes Orphelines recycled fiber mid-thigh socks*

# ECO-DESIGN!

## TOOLS PROVIDED BY ECO TLC

## *Raising awareness and supporting the Apparel and Textile Industry*

### ECO-MODULATION

- Since 2012, products containing at least 15% recycled fibres and/or materials from post-consumer clothing, linen and footwear (CLF) benefit from a discount of 50% on the per-item contribution.
- Starting 2017, products containing a minimum of 30% of fibers/material from production waste can benefit from a 25% discount on their contribution.

In order to continue with this approach, Eco TLC is currently working on defining the criteria for sustainability that apply to textile products and shoes, to which a new form of eco-modulation could also be applied.


### PROVIDING PRACTICAL INFORMATION ON ECO-DESIGN

Eco TLC has created a new section on its website that is dedicated to eco-design. What's the aim of this? Going back to the basics, making readers aware of the benefits of this approach and listing a certain number of documents and/or useful links that permit them to obtain information and to embark on a programme of eco-design.



### DEVELOPING EDUCATIONAL MATERIAL FOR TOMORROW'S DESIGNERS

Eco TLC has established a partnership with the NGO Redress in order to provide French fashion and design schools with a range of educational content relating to eco-design methods (zero-waste design, upcycling, recycling) with the aim of informing tomorrow's designers about the opportunities that eco-design offers and to give practical guidance in the process!

The idea came from the organisation in order to support designers participating in its annual international competition "EcoChic Design Awards". The material, that can be downloaded free, is now available in French, thus allowing students hampered by the language barrier to take advantage of this content, and also to make it easier for them to participate in the EcoChic Design Awards.

**www.ecotlc.fr/page-335-l-eco-conception.html**

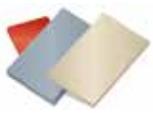
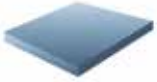
# OVERVIEW OF THE 28 PROJECTS SUPPORTED BY ECO TLC

START UP PROJECT ONGOING PROJECT FINISHED PROJECT

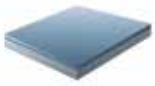
## ECO-DESIGN PROJECTS

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| GROUPE ERAM | Developing a new procedure for design and manufacture that will permit easy deconstruction of all components in an end-of-life shoe (see page 6) |  |  | |
| **PROJECT NAME:** Design for repair – Mr. Loïc VINCENT – lvincent@groupe-eram.com – +33 (0)2 41 73 48 50 | | | | |
| SPORALTEC | Developing a model for an eco-designed shoe with the upper in a knit fabric (see page 14) |  |  | |
| **PROJECT NAME:** Ector – Mr. Olivier PIGNET – olivier.pignet@sporaltec.fr – +33 (0)4 77 39 00 31 | | | | |

## OPEN LOOP PROJECTS

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| CTC | Recovering heat from waste leather from end-of-life shoes (see page 5) |  |  | |
| **PROJECT NAME:** Thermicuir – Mr. Régis LETY – rlety@ctcgroupe.com – +33 (0)4 72 76 10 10 | | | | |
| premices and co | Ending the "Béton de Chiffon" project and set up the industrial step of the Pierre Plume® product through a product range of a dozen colors (see pages 11 et 12) |  |  | |
| **PROJECT NAME:** Pierre Plume – Mrs. Amandine LANGLOIS – amandine@premicesandco.com – +33 (0)6 77 84 35 49 | | | | |
| SILAC Industrie | Making a range of acoustic insulation for the automotive industry using old textile materials (see page 8) |  |  | |
| **PROJECT NAME:** Eco3F – Mr. Valéran HIEL – vhiel@silacindustrie.com – +33 (0)5 45 24 20 11 | | | | |
| AIR AGENCE INNOVATION RESPONSABLE | Improving the purity of the resulting materials (leather/rubber) and output from the recycling line |  |  | |
| Mr. Benjamin MARIAS – b.marias@air-agence.com – +33 (0)9 83 38 91 02 | | | | |
| Prémices architecture - design - graphisme | Creating a decorative sound-absorbing material from recycled textiles |  |  | |
| **PROJECT NAME:** Béton de Chiffons – Mrs. Amandine LANGLOIS – amandine@premicesandco.com – +33 (0)6 77 84 35 49 | | | | |
| LE RELAIS | Developing textile tiles for suspended acoustic ceilings from recycled textiles (see pages 9 and 10) |  |  | |
| **PROJECT NAME:** Ekoroom – Mr. Vianney SARAZIN – vsarazin@lerelais.org – +33 (0)6 89 43 90 09 | | | | |
| WECOSTA WTX + SEKISO | Developing an eco-friendly silencer made from recycled textiles for ventilation in homes (see page 10) |  |  | |
| **PROJECT NAME:** Silencio – Mr. Hugues BROUTÉ – hbroute@wtxautomotive.com – +33 (0)6 80 89 44 70 | | | | |

## OPEN LOOP PROJECTS

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| AIR AGENCE INNOVATION RESPONSABLE | Developing an industrial grinding and separation process to find added value recycling outlet |  |  | |
| Mr. Benjamin MARIAS – b.marias@air-agence.com – +33 (0)9 83 38 91 02 | | | | |
| BIC ESSUYAGE & HYGIÈNE | Developing an innovative textile insulation |  |  | |
| **PROJECT NAME:** IsoKtex – Mr. Michel KEKAYAS – m.kekayas@cobic.fr – +33 (0)4 77 22 25 77 | | | | |
| Communauté de communes Pays de Colombey et du Sud Toulois | Creating a new plastic using textile as a inert fill |  |  | |
| **PROJECT NAME:** Recytex – Mr. Edouard PETITDEMANGE – e-petitdemange@pays-colombey-sudtoulois.fr – +33 (0)3 83 52 08 16 | | | | |
| FRAMIMEX | Developing an exterior sound insulation shield in lightweight concrete |  |  | |
| **PROJECT NAME:** Viacover – Mr. Mehdi ZERROUG – mehdi.zerroug@ecotextile.fr – +33 (0)3 44 43 81 00 | | | | |
| mapea | Recycling of cotton and polyester fibres for use as reinforcement in the plastics industry (see page 13) |  COTTON COTTON / POLYESTER |  | |
| **PROJECT NAME:** Éco-charges – Mr. René GENILLON – r.genillon@mapea.com – +33 (0)4 77 40 18 38 | | | | |
| NOVAFLOOR | Incorporating end-of-life textiles as inert fillers in decorative plates |  |  | |
| Mr. Vincent FORGET – vf@ecolomy.com – +33 (0)3 44 03 13 25 | | | | |

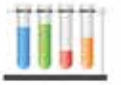
## CLOSED LOOP PROJECTS

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| 1083 BORNE IN FRANCE | Recreating a yarn with cotton from old jeans (see page 7) |  |  | |
| Mr. David LEROMAIN – david@1083.fr – +33 (0)4 82 32 60 40 | | | | |
| filatures du parc | Making use of old cotton/polyester clothes for spinning of recycled materials employing a method of defibration that is suitable for weaving or knitting new articles of textile clothing |  COTTON / POLYESTER |  | |
| **PROJECT NAME:** Parcot – Mr. Fabrice LODETTI – filatures.parc@wanadoo.fr – +33 (0)5 63 74 01 64 | | | | |
| CHAUSSETTES ORPHELINES Márcia de Carvalho Paris | Recycling of damaged socks by creating a yarn for making new clothing |  |  | |
| **PROJECT NAME:** Anima – Mrs. Marcia DE CARVALHO – contact@marciadecarvalho.fr – +33 (0)1 42 51 64 05 | | | | |

## CLOSED LOOP PROJECTS

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| DECATHLON | Manufacturing polyester yarn from post-consumer polyester clothing, shoes and household textiles | POLYESTER |  | |
| Mr. Vincent VENTENAT – vincent.ventenat@decathlon.com – +33 (0)3 20 33 73 43 | | | | |
| filatures du parc | Transforming used woven material out of wooly fibers into new yarns of the same quality (see page 9) | WOOL |  | |
| Mr. Fabrice LODETTI – filatures.parc@wanadoo.fr – +33 (0)5 63 74 01 64 | | | | |
| Trucs-Trouvailles | Recycling rubber soles into a new product | |  | |
| Mrs. Sylvie DAMERON – sylvie.dameron@gmail.com – +33 (0)1 47 00 66 10 | | | | |

## SEPARATION AND PREPARATION TECHNIQUES

| COMPANY | GOAL | TLC COVERED | RESULT | PROGRESS |
|---|---|---|---|---|
| CETI | Researching and developing either automatic or semi-automatic procedures for removing hard points or for disassembling clothing (see page 4) | | | |
| PROJECT NAME: Deliss – Mr. Thierry LE BLAN – thierry.leblan@ceti.com – +33 (0)3 62 72 61 10 | | | | |
| SYNERGIESTLC | Studying and refining of a new sorting method for the purpose selecting secondary materials not destined for second-hand clothes trade (see page 11) | |  | |
| PROJECT NAME: Autotri – Mr. Thomas FRAINEUX – thomas.fraineux@synergiestlc.fr – +33 (0)7 63 32 37 17 | | | | |
| PÔLE ÉCO-INDUSTRIES | Developing a process for selective chemical recycling of used mixed textiles (2 projects) | MIXED FIBRES |  | |
| PROJECT NAME: Multitex – Mr. Damien DELETRAZ – d.deletraz@pole-ecoindustries.fr – +33 (0)5 49 44 76 69 | | | | |
| MINOT RECYCLAGE TEXTILE | Optimising a process of end-of-life textiles to achieve an improvement in the percentage of used textiles unravelling in the process (see page 12) | |  | |
| Mr. Marc GALMICHE – mgalmiche@lerelais.org – +33 (0)6 79 19 06 88 | | | | |
| FeyeCon | Developing an un-dye process for polyester fabric based to enable its recycling | POLYESTER |  | |
| PROJECT NAME: DécoTex I – Mrs. Daniéla TRAMBITAS – daniela.trambitas@feyecon.com | | | | |
| SEPAREX Supercritical Fluid Technology Engineering your future. | Moving to the pilot scale of DécoTex I project (FEYECON) - $CO_2$ sc. bleaching technology | POLYESTER |  | |
| PROJECT NAME: DécoTex II – Mrs. Daniéla TRAMBITAS – daniela.trambitas@feyecon.com | | | | |

# Tools provided by Eco TLC

## *Interested in submitting a project proposal?*

**ECO TLC LAUNCHES ITS CALL FOR PROJECT PROPOSALS EVERY YEAR BETWEEN 1ST SEPTEMBER AND 31ST OCTOBER!**


Its aim is to conduct research into new outlets for CLF or to improve the different operations that could result in a reduction in processing costs. It is open to any kind of organisation.

**Get ready now to present your application!**

GO TO THE **INNOVATION** SECTION OF THE WEBSITE:
**www.ecotlc.fr**
**to find all the tools!**

## *The project holders toolkit*

To provide support and guidance to potential project holders, Eco TLC has released a toolbox including practical (not exhaustive) information to help them to find various organisations that may provide assistance and/or back their project (available only in French).



Roads to Innovation presents all the projects supported by Eco TLC. It also includes all contact details to get in touch with projects holders.

PROMOTING ENVIRONMENTAL PERFORMANCE
OF PRODUCTS AMONG CONSUMERS

# Coming soon: clear environmental information on labels!


*Overwhelmed by the various logos on labels, consumers are searching for reliable information on the environmental aspects of the products that they are buying. The environmental labelling of products aims to give consumers a clear and precise answer that will help them to make their choice while being well-informed.*

The beginnings of environmental labelling go back to the "Grenelle de l'Environnement" (the environmental think tank), when readily available, high-quality environmental information was called for in 2007. Since then, several experiments have been conducted up until recently when the logo was designed and criteria were established for the ratings.

## AN EXEMPLARY FRENCH APPROACH

It is a voluntary undertaking on the part of the private sector that is advocated in France today. Some pioneering businesses, such as Decathlon, Casino or Fnac, and numerous SMEs have made considerable progress on this issue. At the same time, a pilot study was conducted between 2010 and 2013 with the French Ministry for the Environment and ADEME*. In view of the interesting results obtained, a pre-launch experiment started in 2015 involving three sectors: textile/clothing, furniture and tourism. The aim was to validate the best possible conditions for implementing this scheme. It is being conducted in collaboration with ADEME, the Ministry, the pioneering companies and consumer associations and will deliver a common reference frame in the form of a logo that will display four differing criteria according to the products and a global rating: a number for the food industry and a letter, **A**, **B**, **C**, **D** or **E**, for other products. The technical foundations still need to be strengthened, reference criteria identified for each product and ADEME's "Impact" database needs to be continuously completed as it gathers the data in a central place, and monitoring of criteria for comparable products needs to be implemented.

## EUROPEAN EXPERIMENTS

Another experiment conducted over three years, this time on a European scale, will soon come to completion. It was developed as part of the EU's action plan for the circular economy and involves 25 sectors of industry. France is very involved in the process and is promoting its approach successfully, having had a head start on its European partners. Particular importance is assigned to encouraging combining of criteria and ensuring that standards are indetical so that the label means the same all over Europe.

## *The case of a French textiles company which markets A rated products*

*Éric BOËL, Les Tissages de Charlieu CEO.* © LTC

**ADEME: Agency for the Environment and Energy Management*

As Eric Boël, president and Chief Executive Officer at Tissages de Charlieu (LTC) likes to say: *"Environmental information labeling is a brilliant opportunity to promote among the general public the endeavours taken by French businesses to observe some of the strictest social and environmental standards in the world."* LTC is a weaver that specialises in jacquard. As it satisfies all the social and environmental criteria, it benefits from the A rating on the environmental label. *"25% of our raw materials procurement is for organic or recycled yarn; we have a contract for green electricity that comes from hydroelectric stations in Savoie, we pay 25% of our profits to our employees, 12% of our workers are disabled and we are working on the so-called liberated company model. In addition to being a supplier of fabrics, for which we provide our customers with the information that permits them to obtain environmental labelling, we are behind three "'house brands" ("intra-marques" – created in-house by employees), with designs for organic cotton shawls (Létol), belts (Tonnerre de Belt) and cloth bags (Indispensac). These three products have an extremely low environmental footprint and they have the A rating on their labels. And believe me, consumers are very receptive as the company has been posting continuous growth for the last three years!"*

**ALL THE EDITIONS OF "ROADS TO INNOVATION" ARE AVAILABLE ON www.ecotlc.fr IN THE SECTION: L'INNOVATION > LES PROJETS SOUTENUS**