

# IMPACT

# REPORT



# INTRODUCTION



This report presents the results of one of the innovation tracks carried out by the teams of the European Interreg project Wanderful.stream (2020-2023). In this project, seven partners from the Euregio Meuse-Rhine have pooled their knowledge, strengths and resources to jointly support small and medium-sized enterprises in their transition to a circular economy.

Wanderful.stream offers companies free advice and guidance on the recovery of their residual flows; it also initiates and facilitates the co-creation of circular solutions with experts in technology, design and business development in the framework of innovation tracks.

The present report focuses on the results of the innovation track of the company Ahlstrom.

## INNOVATION TEAM

### DESIGN

Jean-Michel Denis (Exbal scrI)

### BUSINESS DEVELOPMENT

Pauline Pötgens  
et Perrine Mercenier (EKLO)

### COORDINATION

Sara Boxus (Wallonie Design)  
Pauline Pötgens (EKLO)

# AHLSTROM

The Ahlstrom Group is a Finnish company that manufactures fiber-based materials.

The multinational has been established in the south of the Province of Liege since 2011.

The Malmedy factory, subject of the innovation track, manufactures 80 types of non woven paper for a wide range of applications :

- Automotive and industrial filter applications;
- Decorative paper backing for printing or painting;
- Undercoats for laminate sheets.

Ahlstrom manufactures high-quality products with high added value. This market segment requires high quality standards and generates large volumes of waste: up to 15,500 tons of reels leave the Malmedy site each year, generating between 400 and 1,000 tons of waste.



The mill generates 3 types of scrap paper which are mainly a mixture of paper pulp (wood or cellulose fibres), of synthetic fibres and of a latex which serves as a binder:

- About a hundred tons of non-woven material in the shape of coils, at present very little recycled;
- A hundred tons of nonwoven in bulk form, which is sent for incineration;
- A few tons of non-woven in the cut form generated by cutting the reels, also for incineration.



Rolls



Bulk



Scraps

Waste disposal solutions that have been identified so far are not optimal and cost the company a considerable amount of money. While the financial aspect is very important, this is not the only motive for the company to investigate the valorization of all inputs in the production process: this consideration is in line with the company's innovation policy and commitment to become more involved in a circular dynamic.





By engaging with the Wonderful.stream project, Ahlstrom wanted to explore ways to add value to their waste streams (in particular those in bulk and trimmings form). In addition, the company was interested in seeking local partners for transformation of its residual streams from the start.

It was during a bootcamp that took place in the context of Wonderful.stream and prior to the innovation track that a team of students in design from ESA Saint-Luc Liège and in business from HEC Advisory under the guidance of the industrial designer Jean-Michel Denis developed the idea of recycling the residual flows of non-woven paper in the production of thermal insulation. The insulation concept appealed directly to the company so its technical and economic feasibility was investigated through an innovation track.

[www.ahlstrom.com](http://www.ahlstrom.com)

## 01.

A high added value recovery solution

## 02.

Technical feasibility and logistics / handling behind the concept

## 03.

Industrial symbiosis on a local scale

# INNOVATION PROCESS

The mission of the project team was to assess the feasibility of the insulation solution. To this end, it was necessary to identify the manufacturing technique behind the insulation product, to find a local partner with expertise in processing this material and to confirm the technical feasibility of the product.

## STEP 1

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### Identifying the manufacturing technique behind the insulation product



The concept of an insulation product appealed to Ahlstrom because it was a sustainable upgrading solution and because that kind of products are in high demand. The next step was to identify the right type of product into which nonwoven paper could be integrated. The team quickly focused on cellulose wadding, a material made from recycled paper (e.g., newspaper) via a relatively simple, low-skilled process. An initial study was conducted to determine the key concerns for transforming Ahlstrom's production waste into cellulose wadding (compatibility of non-woven paper composition, technical transformation feasibility, industrial partners required, conditioning and handling...)

## STEP 2

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### Finding the right local partner, a win/win relationship

The company was interested in finding a local partner willing to integrate their residual paper waste into the production process of their insulation solutions. The search was successful and brought the company ISOPROC to the project. In fact, as quality raw materials in paper/cardboard are becoming scarcer, the company is looking to diversify with new sources of supply.

## ÉTAPE 3

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### Confirming the technical feasibility

Unwoven paper production waste requires shredding to be converted into insulation. Yet, this waste contains cellulose and a large number of fibers of various kinds (mostly synthetic) and adjuvants (latex, fillers...)

It was therefore necessary to carry out some shredding tests. ISOPROC first conducted shredding trials on its own production line to assess the suitability of Ahlstrom's waste as a raw material. Subsequently, the Celabor research center supplemented these tests by carrying out others to verify the absence of risks of emission of harmful substances during the transformation process.

# RESULTS

Through the collaborative efforts of design, technology and business experts, it has been successfully demonstrated that Ahlstrom's residual non-woven paper streams could be valorised into an insulation product, and what types of waste would be suitable for insulation applications and the ways such waste would be transformed by ISOPROC.

Yet there is more to this industrial symbiosis than the purely technical aspects. After these were validated, it had to be guaranteed that both companies were transparently informed about the key aspects of the partnership, including :

- Role of each party in the collaboration: Ahlstrom handles sorting and storage of the generated nonwoven paper waste, while Isoproc arranges transportation of the waste, its shredding, and processing into cellulose wadding (incorporated in small quantities into iQ3 brand insulation products) ;
- Quantity and frequency of waste to be recovered ;
- Storage and transport of the waste to be recovered ;
- Exchange price.



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# CONCLUSION

The innovation track provided Ahlstrom with the support it needed for the implementation of a project to valorise non-woven paper production waste into an insulation solution. The input from experts helped identify the constraints to this project, validated its feasibility from a technical point of view and strengthened the partnership with ISOPROC.

There remain a number of steps to take until the project becomes fully operational. Both companies are however now independent to pursue the collaboration.



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## 01. Acquiring equipment for processing the waste streams

During the initial trials, decompacting the non-woven paper consumed a great deal of time, as the waste was in rolls and had to be hand decompacted before it could be fed onto the conveyor belts. To optimise handling of this waste paper, ISOPROC will need to invest in a shredder.

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## 02. Formalising the partnership

Contracts between both companies still need to be drafted. The contract will include the terms and conditions for cooperation regarding transportation, data exchange and costs.

# Interreg

## Euregio Meuse-Rhine

European Regional Development Fund



Interreg EMR transcends borders by enabling collaboration between regional areas in different countries. We are investing in projects on innovation, the economy, social inclusion and training, and territorial cohesion. By encouraging cross-border collaboration, we strengthen the economic and social fabric in the border region between Belgium, Germany, and the Netherlands.

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