

EDITO

24 months have flown by since the beginning of the WhiteCycle project, and we are thrilled to report significant progress !

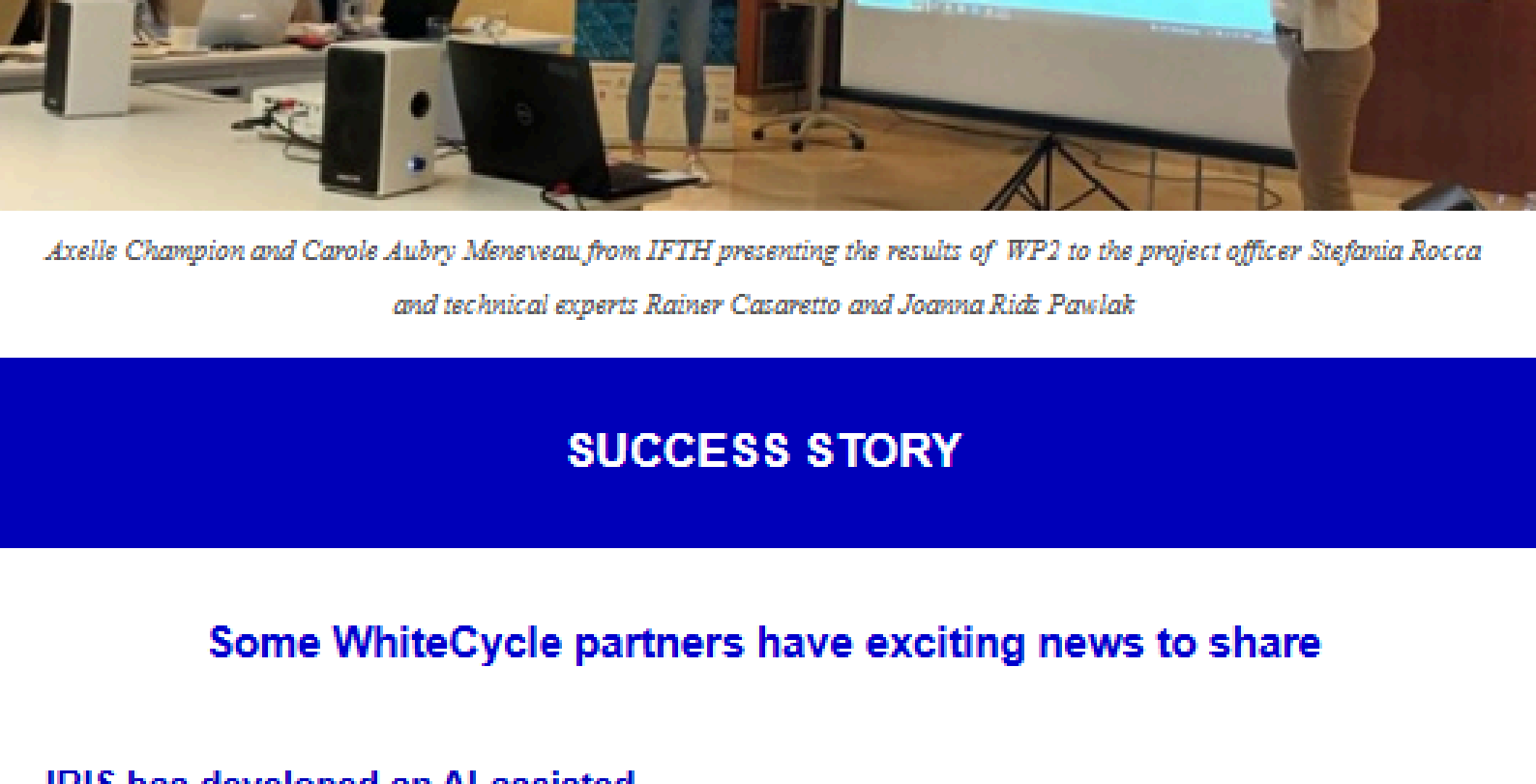
The results have been showcased in our first report to the European Commission, and we are pleased to announce that there were no remarks regarding the technical aspects. The consortium has achieved major breakthroughs in several key areas:

- Enzymatic depolymerization
- PET amorphization
- PET detection in complex garments
- Sorting PET fibers contained in matrices
- Presentation of the project and its results at various conferences

The major advances of the project were presented to the project officer during the review meeting.

[Click here to read our article about the initial results of the WhiteCycle project.](#)

Stay tuned for more updates on our groundbreaking efforts!



Axelle Champion and Carole Aubry Meneveau from IFTH presenting the results of WP2 to the project officer Stefania Rocca and technical experts Rainer Casaretto and Joanna Rida Pawlak

SUCCESS STORY
Some WhiteCycle partners have exciting news to share

IRIS has developed an AI-assisted handheld NIR analyzer for use in the field or in the production process. The device is featured with automated calibrations, modelling and validation.

Visum Palm™ is an easy-to-use, self-contained, handheld NIR analyzer for the real-time determination of the chemical composition of a wide variety of materials and mixtures, thus reducing laboratory analysis times, production costs, turnaround time and minimising risks in the production chain.

GET MORE CHEMICAL INFORMATION WITH VISUM PALM™

The Visum Palm™ handheld NIR analyzer features a powerful spectrophotometer, a 10 mm diameter measurement area, 256 spectral channels, and an illumination and light collection system that together allow you to obtain more chemical information from each sample and mitigate the heterogeneities present in the real world. It is a real-time, non-destructive analysis tool that allows optimisation of quality control and processes without having to resort to traditional laboratory techniques. Thanks to the AI built into the external Visum Master™ software, the user can develop and edit their own calibrations or NIR methods of identification, classification or quantification without technical knowledge of spectroscopy, making the Visum Palm™ handheld NIR analyzer an open system for current and future analysis needs with complete end-user autonomy. Among the most popular applications of the Visum Palm™ handheld NIR analyzer are the identification of raw materials in the pharmaceutical industry (RMID), moisture or LoD analysis, the identification of plastics and textiles, analysis of different parameters in food, analysis of grains, cereals and forages, quantitative measurements of pharmaceutical API's, analysis of homogeneity, drying, among many specific applications in different materials, products and industries.

[learn more](#)

The Deutsche Institute für Textil- und Faserforschung Denkendorf (DITF) are partner of the SOLSTICE project that was launched at May 28.

SOLSTICE addresses key social and technical challenges within the textile industry. Through active demonstration in four European regions (Grenoble in France, Berlin in Germany, Prato in Italy, and Catalonia in Spain), the project showcases the implementation of climate-neutral practices and the transition towards a circular economy specifically tailored for the textile sector. It's based on a holistic approach that encompasses all stages of waste prevention and management, guided by a 5R strategy: Refuse/Reduce, Reuse, Repair, Repurpose, and Recycle.

As part of a consortium of 24 partners working on the project, DITF will implement the business pilot and demonstration use case for recycling of Polyamide (PA). DITF will also lead the segment on the integration and sustainability assessment and will perform Life Cycle Assessment (LCA) of the four polymer recycling processes as well as a techno-economic assessment for these processes.

[learn more](#)

IFTH is involved in numerous national and European projects on environmental topics throughout the value chain

The "AGEC Law" (Anti-Waste and Circular Economy Law) is a French legislation aimed at significantly reducing waste and promoting a circular economy. Reducing environmental impacts in the textile sector is a real challenge that requires increasing technical innovation. In this context, IFTH is involved in numerous national and European projects on environmental topics throughout the value chain.

Upstream in the value chain, eco-conception is a major focus of IFTH's research. New bio-based polymers with improved mechanical properties have been launched in recent years. IFTH aims to demonstrate the spinnability and textile processing of these new materials, such as in the French BIO III project supported by ANR. This project involves developing a new PLA polymer with optimized mechanical properties for bio-insect repellent net applications.

The [STAR3 project](#), supported by FEDER funding and handled by IFTH, promotes the circulation of textile waste at a regional scale between Switzerland and France. To achieve this, new sorting, repair, and recycling channels for textile and plastic materials will be developed. Their viability and technical-economic feasibility will be assessed through the creation of demonstrators. This project also aims to create new partnerships between social and solidarity economy organizations and entities from the research and innovation sectors, linking "economic innovation" with "social innovation."

Additionally, IFTH is involved in several other European projects, including WHITECYCLE, SOLSTICE (supported by Horizon Europe and started in May 2024), and the French project CASTTOR.

Funded by the French State as part of France 2030 and operated by ADEME, CASTTOR is also supported by the European Union's NextGenerationEU. SOLSTICE addresses key social and technical challenges within the textile industry by demonstrating climate-neutral practices and transitioning towards a circular economy across four European regions. The project follows a holistic 5R strategy: Refuse/Reduce, Reuse, Repair, Repurpose, and Recycle. It supports sustainable growth in the textile sector by raising customer awareness, enhancing recycling with new sorting methods, ensuring feedstock traceability through the Digital Product Passport, and providing data and guidelines to decision-makers. The CASTTOR project aims to demonstrate the pre-industrial viability of an innovative chemical technology for selectively depolymerizing polyester from used multi-material textiles, with the goal of significantly reducing greenhouse gas emissions compared to traditional waste management and landfilling methods.


LET'S DISCOVER THE DIFFERENT PROJECT'S PARTNERS !

The consortium is composed of 16 european partners and their different fields of expertise. This edition completes our analysis of WhiteCycle's brand owners with HVL, iPoint, and UCA below.

Focus on HVL

With about 16,000 students and 1,800 staff, the Western Norway University of Applied Sciences is one of the largest higher education institutions in Norway, providing degree programs at bachelor, master and PhD levels. Western Norway is a key area for the provision of hydropower-based energy to the rest of Norway and beyond. Traditionally, the links to actors in the energy field are strong, also reflected in setting the research agenda for HVL. HVL is a member of EERA, E3S. HVL partners in Whitecycle are located at the Campus in Sogndal, Department of Environmental Sciences within the Faculty of Engineering and Natural Sciences.

[learn more](#)

Focus on iPoint

iPoint empowers companies to collect and analyze all necessary data to assess and report the environmental, social, and economic impacts of their products and related processes. Since 2001, SMEs and Fortune Global 500 companies alike have been using their software to manage compliance, risk, and sustainability by digitalizing the lifecycles of products and supply chain relationships. With their consulting and software solutions, iPoint is also a leading global company for material flow analyses, life cycle assessments, and material flow cost accounting. iPoint offers solutions for sustainable products that enable companies to reduce the CO2 footprint, to reduce environmental impacts along the entire product life cycle, and to combine environmental and efficiency perspectives through comprehensive cost accounting. The company is active in the development of international standards like the ISO 14 000 series as well as the ISO TC 323 series of standards for Circular Economy.

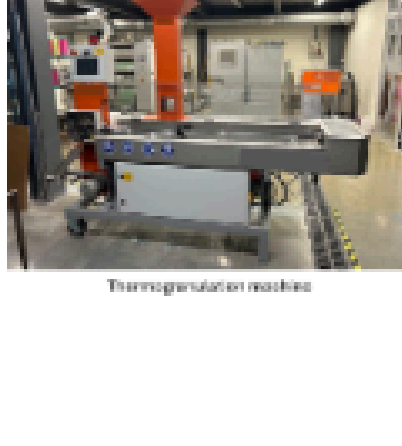
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Focus on UCA

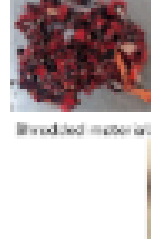
University of Clermont-Ferrand is a school that aims to research, educate, and spur action for a sustainable world guided by systems thinking and to open up for creative dialogues on alternative futures. The Centre's focus lies on systems thinking approaches and system dynamics modelling for sustainable development covering a broad range of topics in the social, economic and environmental domains of sustainability (e.g. energy systems, industrial manufacturing, agricultural systems, natural resources, socioeconomic systems, circular economy, sustainable cities, etc). The methodological approach is integrative and inter- and transdisciplinary. The overall vision is to facilitate sustainable system development within and beyond Europe through research, educational and networking activities.

[learn more](#)





Extruder machine



Shredded material



Granulated material

Focus on the pre-treatment of separated PET from complex waste

Pre-treatment is a crucial step in the recycling process of PET. The goal is to maximize the surface area of the waste to enhance the enzyme's effectiveness when breaking down the PET polymer into its molecular components.

Carbios' depolymerization process requires PET specific crystallinity and shape to ensure the hydrolysis' efficiency, the core step of Carbios biotechnology. In this context, Carbios, Michelin and IFTH are collaborating on pre-treatment process of the PET from complex waste.

A few months ago, IFTH invested in a new technology to obtain pellets from shredded material. This technology is an extruder with a specific supply that can process fibers or shredded wastes at pilot scale.

First results have demonstrated the potential of this new technology to realize the pre-treatment. As the picture shows, pellets have been obtained from the complex shredded material.

During the next few months, parameters of the machine will be optimized in order to meet Carbios specifications for complex wastes.

[learn more](#)

AGENDA

- 1 – 2 October 2024 – Plastics Recycling Technology Conference 2024 - Vienna, Austria

[Find out more](#)

- 15 – 16 october 2024 : 2nd Ecosystem conference, Milan, Italy

[Find out more](#)

- 05 – 06 november 2024 : Colloque Recyclage Polymères, Clermont-Ferrand, France

[Find out more](#)

- 20 – 21 November 2024 – The Advanced Recycling Conference - Cologne, Germany

[Find out more](#)

THEY TALK ABOUT US !

ECOSYSTEMEX and CISUTAC at WhiteCycle

Workshop

[Press release](#)

Michelin honoured for its tyre containing

45% renewable materials

[Press release](#)

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