



THERMOFIRE Newsletter #3

Bio-based fire-retardant thermoplastic composites reinforced with natural fibres

Welcome to the third edition of the THERMOFIRE newsletter!

Dear readers, in this issue, we share exciting updates from the project partners, recent technical progress, and highlights from project outreach activities. THERMOFIRE continues its mission to revolutionize fire-safe, lightweight, and sustainable thermoplastic composites based on bio-based raw materials for the textile, automotive, and aerospace industries. Warm regards, The THERMOFIRE Team

In This Issue:

1. THERMOFIRE in Brief
2. Looking Back: Our past events
3. Partners Contributions: Progress Updates
4. Upcoming Events
5. Stay Connected



The **THERMOFIRE** project aims to develop novel, lightweight, and recyclable thermoplastic composites with improved fire-retardant properties. These composites are based on **100% bio-based thermoplastic polymers, natural fibres, and halogen-free flame-retardant additives**, addressing the performance, sustainability, and safety needs of key industrial sectors including **aerospace, automotive, and textiles**.

The THERMOFIRE project has fifteen specific objectives that are designed to deliver the project goal of developing bio-based and recyclable TP composites with bio-based flame retardants. The specific objectives cover 3 areas: **Technological Objectives, Environmental Objectives and Economic Objectives**.

[For more information, visit our official website](#)

Looking Back: Key Event

24M Consortium meeting

Serquigny, France

21 May 2025

THERMOFIRE CBE-JU members gathered in Normandy, France, for the 24-month consortium meeting. A key moment for the project, which has reached its halfway point, rich in exchanges and reflections on the work and challenges still to be overcome. The meeting included a visit to La French Filature, a company that manufactures flax for the automotive, sports and textile industries, and to the facilities of Arkema, our event's host partner in Serquigny, France. Many thanks to the Arkema team for their warm welcome and the organization of these two days!



NeMMo 2025: New materials for future mobility

Rennes, France

2-3 July 2025

THERMOFIRE was proud to take part in NeMMO 2025 in Rennes a key event dedicated to materials for next-generation mobility. We were there together with several of our project partners, presenting our shared progress during a dedicated session: "THERMOFIRE: Bio-based fire-retardant thermoplastic composites reinforced with natural fibres." by Eduardo López González from Fundación Centro Tecnológico Miranda de Ebro (CTME).



This presence at JEC confirmed THERMOFIRE's positioning at the forefront of European innovation in **sustainable, fire-retardant composite materials**, while reinforcing partnerships across the bioeconomy and materials ecosystems.

Progress Updates

NaturePlast: Scaling Up Bio-Based Composites for Industrial Applications

NaturePlast, based in Normandy, France, specializes in the distribution, production, and development of bioplastics, with a focus on biocomposites made from by-products and plant fibres. Within THERMOFIRE, NaturePlast plays a pivotal role in scaling up lab-developed formulations to semi-industrial production. Equipped with a 27 mm twin-screw extruder, the company can produce up to 500 kg of bioplastic-based formulations per day, bridging the gap between R&D and pre-industrial application.

Recent Progress:

NaturePlast's recent efforts have focused on evaluating the processability of natural fibres—primarily flax and cellulose—for PA-based biocomposites. These fibres pose several industrial challenges, such as accurate dosing and homogeneous dispersion in the polymer matrix, both critical for achieving consistent mechanical performance. The team has successfully produced small batches (~10 kg) of biocomposites with flax or cellulose fibres and performed injection moulding and mechanical characterization. The goal is to validate the reproducibility and scalability of the materials compared to laboratory-produced equivalents.



Next Steps:

NaturePlast will continue upscaling new formulations, with particular attention to improving fibre dosing and incorporating the bio-based flame retardants developed in THERMOFIRE. The ultimate aim is to produce sufficient material to manufacture functional demonstrators, confirming the materials' industrial viability.

CTCR: Advancing Flame-Retardant Bio-Composites for Technical Textiles

The Centro Tecnológico del Calzado de La Rioja (CTCR) is contributing to THERMOFIRE through the development of sustainable thermoplastic composites for technical and functional textiles, with an emphasis on flame-retardancy and circularity.

By combining natural fibres such as jute and hemp with biopolymers, CTCR aims to create durable and safe alternatives to synthetic materials, aligning with growing demand for eco-friendly solutions across industries.

Recent Progress:

CTCR has successfully produced non-woven mats using an air-laid process, reinforced with jute and hemp. The mats were then consolidated via needle-punching, improving their mechanical integrity. These fibre mats were combined with PLATAMID®, a biopolymer supplied by Arkema, through spraying and thermoforming. Jute-based composites demonstrated superior polymer impregnation and structural performance.

To meet fire safety standards, CTCR also developed flame-retardant versions using jute fibres treated with THER11 (a bio-based flame retardant by Avanzare). These composites retained structural integrity even at lower polymer content and showed excellent fire resistance in initial tests.



Figure 1. Jute raw fiber composites



Figure 2. Jute with THER11 flame-retardant fiber composites

Next Steps:

CTCR will conduct additional tests to verify compliance with FMVSS302 fire standards. These results will guide further development and integration of THERMOFIRE materials into advanced textile applications, enhancing both performance and sustainability.

UPCOMING EVENT

Stakeholder Engagement and Standardization Workshop

Date: Q4 2025

Online

More information to come, stay updated !

Stay connected

Stay updated with the latest news from THERMOFIRE:

Website: <https://www.thermofire-project.eu>

Email: elvira@avanzarematerials.com

LinkedIn: <https://www.linkedin.com/company/thermofire-cbe-ju/>

Register to our newsletter: <https://www.thermofire-project.eu/newsletter.html>

We welcome your questions, feedback, and ideas. Let's work together to revolutionize fire safety!

Thank you for your interest and support of the THERMOFIRE project. Stay tuned for more updates in the next edition of our newsletter.

Warm regards,

The THERMOFIRE Team

[Register to our newsletter](#)



THERMOFIRE Project – GA no. 101112370