



Industrial Feather Waste Valorisation for Sustainable KeRatin-based MATERIALS

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KaRMA2020 is a project funded in the frame of Horizon2020 TOPIC SPIRE-03-2016 involving a multidisciplinary and multicultural consortium coordinated by CIDETEC with the participation of SADA, VTT, RISE, CTB, AIM, IBWCh SIOEN, CNRS, AVT, FKUR, FTIB, VTG, CTech, DLabs and SPPR. The project focuses on innovative technologies for the valorisation of European bio-resources turned into high added value process streams.

After 36 months of research and development, the KaRMA2020 project has now come to an end. This project was conceived with a clear idea: using chicken feathers to create raw materials for different applications. As a result, this methodology would reduce the consumption of fossil fuels in the manufacturing process of different end-products. Furthermore, the procedure would valorise an underutilised waste.

After three years of hard work, the consortium is now happy to share the results that were achieved. The diagram below (Figure 1) shows a small value chain presenting the contributions made within the project.

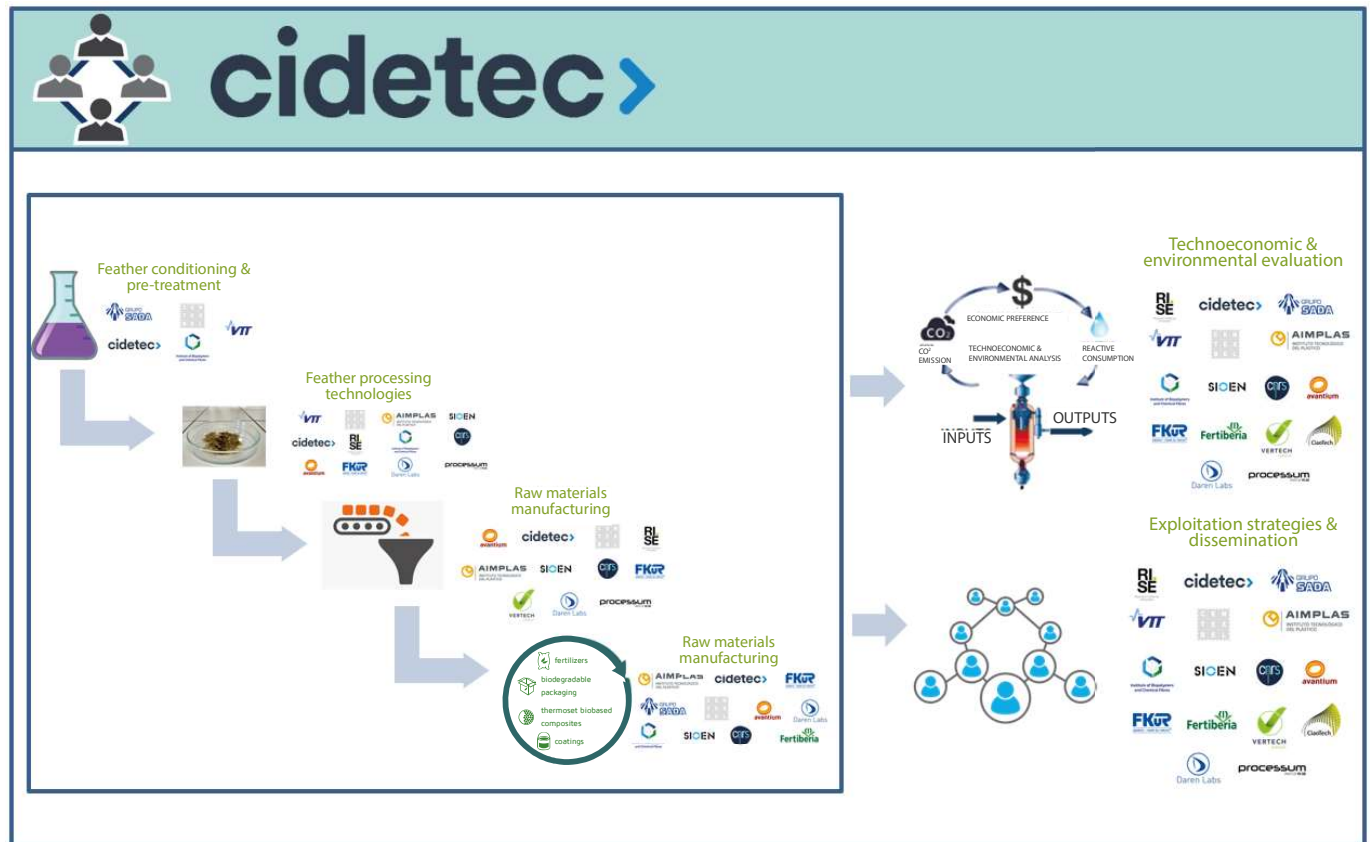


Figure 1. Diagram for KaRMA2020

IBWCh was in charge of the development of the non-woven which within the project were directly connected with the humins-based resins developed in the facilities of our partners CID, AVT and CNRS. CID was in charge of validating the use of non-woven and humins creating composites.



Finally, one of the last raw materials used and obtained from the feathers were flame retardants. We previously mentioned the hydrolyzed keratin. DIabs was in charge of developing the FR on a laboratory scale. They found the desired composition that was scaled-up by AIM. AIM itself developed the line of fireproof paints. CTB and SIOEN investigated the properties on textiles (line of PU coatings for textiles) on a small scale and on an industrial scale respectively.

During and after the experimental task other partners were involved in different activities without connection with the experimental trials but with the same level of importance. VTG had the task of validating the replicability, scale-up and optimization of different processes. Also, a sustainability study of the project was needed. The sustainability is based on three essential pillars: the environmental, the economy and society. RISE carried out this activity. The task was focused on LCA and LCC. Thanks to that, we were able to study the impact of KaRMA2020 technology. Linked with this task was planned a risk management plan (VTG) to find, analyse, evaluate and propose mitigation actions depending on the risk found. For future implementation of the technology a post-project risk evaluation was proposed where some expected risks were assumed for the different end-product lines. All partners collaborated in the correct development of the different sustainability studies and risk control.

The scope of this project would not have been achieved without our partner CTech / PNO, which carried out the tasks of communication, dissemination and exploitation of the KaRMA2020 technology. All the advances, innovation and fantastic results were shown in different events through Europe and actively disseminated to interested stakeholders.

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For more info about the project visit the KaRMA2020 website at www.karma2020.eu
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