



Industrial Feather Waste Valorisation for Sustainable KeRatin-based MAterials

Enjoy reading the KaRMA2020 newsletter!

The project, funded in the frame of Horizon2020 Topic SPIRE-03-2016: Industrial technologies for the valorisation of European bio-resources into high added value process streams, aims to the industrial manufacture and exploitation of sustainable raw materials from feather waste to develop innovative green products for high impact cross-sectorial markets.

It is now month 30 of the project, and the consortium enters the final countdown. Researchers, engineers and analysts are now finishing most of the research and innovation lines opened in this ambitious project. Which would be the most sustainable and profitable process technologies? Will we achieve reliable products able to compete with fossil-based alternatives? What is the most efficient configuration for the future feather-based value chains? The last 6 months of the project will give a final answer to all these questions. But, in the meantime, we are glad to show you some of the top-performance bio-based end products manufactured within the project. The future is here, and it is made with feathers!

FOOD TRAYS

AIMPLAS is developing keratin-based food packaging solutions for poultry industry. These thermoformed trays are made of bioplastics reinforced with feathers, which made them fully compostable and recyclable. These new keratin-based packaging solutions constitute a real alternative to current PET trays, reducing significantly CO2 foot-print.



POLYURETHANE COATED TEXTILES FOR HOSPITAL MATTRESS COVERS, STRETCHERS AND UPHOLSTERED SEAT MATERIALS

The utilization of hazardous and persistent flame retardants is harming our environment. In this context, active research within SIOEN led to the development of an alternative that responds to the ever louder demand for a circular economy. If you want to contribute to a healthier planet please consider SIOEN's new range of KARMA coated fabrics. These coated textiles consist of a polyurethane coating incorporating a green flame retardant combined with a knit made out of recycled PET. As such more than 50% in weight of these materials comes from recycled resources. These KARMA materials are as far as we know the first PU coated fabrics on the market utilizing a flame retardant which is based on a waste stream (poultry feather waste). The KARMA technology can be used for PU artificial leather, hospital mattress covers or stretchers without loss of current properties.



POLYURETHANE FIREPROOF PAINTS

AIMPLAS is developing keratin-based fireproof coatings for construction sector. These bio-based flame-retardant coatings will be presented as a real alternative of halogen-based flame retardants, which are associated with health and environmental problems. They will be able to be used in a variety of surfaces for construction applications, where excellent chemical-physical properties as well as wear-and-tear and fire resistance are required.



CONTROLLED RELEASE FERTILIZERS, COATED BY KERATIN COMPOUNDS.

The controlled release fertilizers developed in the project will increase the efficiency of nutrients uptake by the gradual release of the nutrients. An improved coincidence of plant uptake and nutrient release contributes to reduce the rate of nutrient removal from the soil by excessive leaching due to rain or irrigation practices. The longer release period of these fertilizers may coincide better with the plant needs and consequently increase the crop yield. The nutrients supply will sustain crop growth for a prolonged time and consequently lower the labour and environmental costs of the agricultural system by reducing the need for repeated fertilizer application.

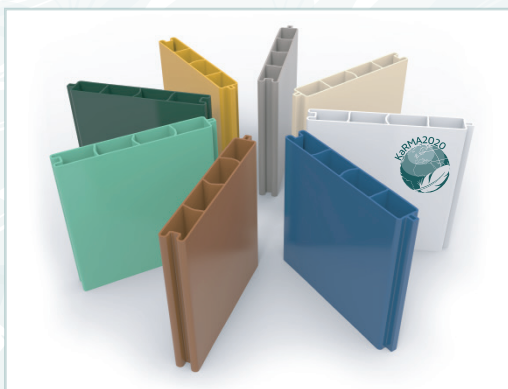


NPK FERTILIZERS WITH KERATIN



NPK fertilizers with keratin have the advantage of combining the benefits of the two forms of nitrogen: organic and inorganic. Nitrogen is the most needed macronutrient for plants. The lack of nitrogen results in declining soil fertility, low yields and low crop quality. On the other hand, excess nitrogen in the soil may move into the ground water, may cause eutrophication of surface water or escape into the atmosphere, potentially causing pollution and thus contribute to the global warming change. The organic nitrogen is not available to plants. It has to be mineralized into mineral nitrogen forms in the soil such as nitrate or ammonia before plant uptake. Thanks to the addition of both kinds of nitrogen together in the same fertilizer, plants will have longer covered their needs throughout the growing period.

BIO-BASED THERMOSET COMPOSITES FOR STRUCTURAL APPLICATION (WITHIN CONSTRUCTION AND TRANSPORT)



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