

## PRESS RELEASE

### **European project seeks reusability of thermoset composites by means of plastic degrading enzymes generating reusable by-products**

The Aragon-based technology centre Aitiip is coordinating the Bizente research project, which involves 10 partners from five countries and a budget of 3.18 million euros

Up to 40% of emissions could be reduced by applying this technology to thermoset plastics, which would no longer end up being burned or buried in landfills, as it is now the case

Industries such as aeronautics – with 12,000 aircraft awaiting withdrawal from service-, construction, automotive or wind industries will benefit from this initiative

Zaragoza, 20th May 2020.- The breaking down of about 27.5% of plastic waste from thermoset composites which have reached their useful life cycle, and cutting down 40% of emissions into the environment by means of enzymes in order to obtain reusable products thanks to an efficient and sustainable process; this is the main objective of the Bizente project. The Bizente project is a pioneering project funded by the European Union within the 2020 Horizon Initiative, under the coordination of the Aragon-based Technology Centre Aitiip. The overall budget for this study - encompassing 10 partners from 5 countries and 50 professionals- is 3.18 million euros, including 2.5 million from the European Commission. Its estimated duration is 48 months, from May 2020 to April 2024.

The Bizente Project rises up to the sustainability and circular economy challenges the EU faces. Currently there is no final solution for the reusability of thermoset composites: these are either stored in landfills while a solution to valorisation and further reuse is found, or end up being incinerated, causing a negative environmental footprint and harmful effects on public health. Thus, in the aeronautic industry alone there are over 12,000 aircraft about to be withdrawn for service after reaching the end of their useful life cycle containing between 20% and 40% of composites, a percentage which can reach 70% in the latest aircraft models. This problem affects other sectors such as the railway, construction, automotive, power, electronics or sport equipment industries.

This is the first project funded by the EU using enzymes to deal with composites once they have exceeded their lifespan. The Bizente technology is used for the controlled biodegradation of thermoset materials by means of enzymes (organic molecules capable of triggering chemical reactions), which is a new solution involving the application of a bio-catalytic process to a new type of feedstock, i.e. three thermoset resins (epoxy, polyester and vinyl ester) which had not been previously tackled in the value chain of plastics. This innovation opens up new markets and business opportunities for the treatment of plastic waste and provides a new life for products valorised after their biodegradation.

Bizente project's specific solutions, with international impact, will entail wealth and employment growth. In this regard, partners in the Bizente project will create 16 direct jobs once the project ends, while its socioeconomic contribution might entail up to 1,800 indirect

jobs in the sectors of the value chain involved: waste management, biotechnology (enzymes), chemical and composite transformation sectors. These figures can be drawn from the current positive impact that the bio-economy and the circular economy are having on the local economies regarding employment, a boost that would occur in the composites sector, with an estimated 15% growth in jobs involved in recycling and waste management in the next 15 years.

The Bizente project involves a range of work packages, ranging from environmental assessment (involving the social and economic prospects) to dissemination and social awareness raising, through definition of business strategies, staff training, health and safety on toxics, and the meeting of regulations. In addition, it involves professionals from the engineering, chemistry, biology and environmental sectors, among others. This way, partners in the Bizente project cover all the links in the chain involved in this interdisciplinary project, from lab tests to its practical implementation in the industrial sector.

The coordination of the project falls to the Spanish entity, Aitiip Technology Centre, a private foundation involved in R & D & I in materials and processes oriented to society and industry alike, with a wealth of experience regarding both participation in and coordination of European projects. Other institutions and companies party to Bizente are: University of Cádiz (Spain) and Delft University of Technology (Netherlands) as research centres; Evoenzyme (Spain), European Composite Recycling Technology (Denmark), Specific Polymers (France) and Biosphere (Italy), as companies with R&D capabilities; and Teruel Airport, Acciona Construcción and Aernnova, all of them from Spain, as end-users of Bizente technology.



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