



DIBBIOPACK: DEVELOPMENT OF BIODEGRADABLE AND MULTIFUNCTIONAL PACKAGES: IMPROVEMENT OF STRUCTURAL AND BARRIER PROPERTIES, SMART FEATURES AND SUSTAINABILITY

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The aim of DIBBIOPACK project (Large NMP-FP7 project with 19 partners from 10 countries) was to develop new **biobased materials** specially adapted to the development of a wide range of containers or **packages** (biaxially oriented films, injection moulded trays/jars and blow-extrusion bottles) and the improvement of thermal, mechanical and barrier properties of these packages through nanotechnology and **innovative coatings**. A second objective is focused on the operational integration of different intelligent technologies as an **intelligent release antimicrobial device** or RFID devices to provide to the packaging value chain more information about the products and the processes, increase safety and quality of products through supply chain and improve the shelf-life of the packaged products. The project includes the design, development, optimization and manufacturing of multifunctional smart packages, assuring compliance of environmental requirements through LCA and LCC analysis, managing nanotechnology risk through the whole packaging value chain, and finally, end user evaluation in different sectors as cosmetic, pharmaceutical and food industry.

One of the main achievements of the project was the successful integration of biodegradable coatings solution, based on Fraunhofer bioORMOCER[®] plus inorganic solutions, resulting into a highly improved barrier properties on biodegradable PLA films, comparable with current non biodegradable multilayer solutions. Other application of this coating material was its deposition on films for internal labels inside the package, acting as a humidity-triggered antimicrobial release labels, increasing the shelf life of the product.

Currently Dibbiopack is finished, and the results are in the upscaling or exploitation research stage. The coating material developed inside Dibbiopack is being patented since January of this year 2016.

