

## **DIBBIOPACK M36: Development of injection and blow extrusion molded biodegradable and multifunctional packages by nanotechnology: improvement of structural and barrier properties, smart features and sustainability**

V. Peinado<sup>1</sup>, P. Castell<sup>1</sup>, B. Gonzalvo<sup>1</sup>

<sup>1</sup> AITIIP Technological Centre, Zaragoza, Spain

The aim of DIBBIOPACK project (Large NMP-FP7 project with 19 partners from 10 countries), coordinated by AITIIP Technological Centre from Zaragoza, Spain, is 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 anti microbial 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.



Fig.1 - Pharmaceutical bottle applications manufactured using Dibbiopack material formulations on Extrusion-Blow Moulding

The current status (M36 of 48) allows showing the first results of the pilot lines implementation, with packages demonstrators as for instance pharmaceutical application extrusion-blow bottles, injection moulded cosmetic jars and food trays that will start their validation phases in the coming months by the end users, based on the Dibbiopack material formulation based on PLA, nanoadditives and other functionalising additives.