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WWW.BIOBOTTLEPROJECT.EU

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# BIOBOTTLE

**BIOBOTTLE** is an European Project whose aim is the development of new materials to manufacture biodegradable packages for dairy products. The aim is to create multilayer and monolayer plastic bottles, as well as bags to package dairy products which are not required to be separated of the rest of the organic

wastes at the end of their brief shelflife lifespan.

The project consortium provides the resources and expertise required to achieve the proposed objectives through a multidisciplinary approach which combines the capabilities of its partners with experience in different sectors.

## OBJECTIVES

To develop a new biodegradable material that allows maintaining the shelf-life of selected dairy products in comparison with traditional packages.

All polymers and additives used fulfill the FDA and European regulations to be approved for food contact applications.

Are thermally and mechanically resistant, to achieve similar properties than (HDPE).

Bottles and bags intended for packaging dairy product are stable at temperature up to 95 °C during the pasteurization, UHT system and transportation and to achieve the required mechanical properties to withstand the form filling sealing (for fresh milk packed in flexible pouches).

Are processable by traditional plastic processing methods, such as Blown Film Extrusion to obtain pouches and Extrusion Blow Moulding to obtain bottles.

Achieve similar weight than conventional packaging taking into account that the density of biopolymers is 30 % higher than HDPE.

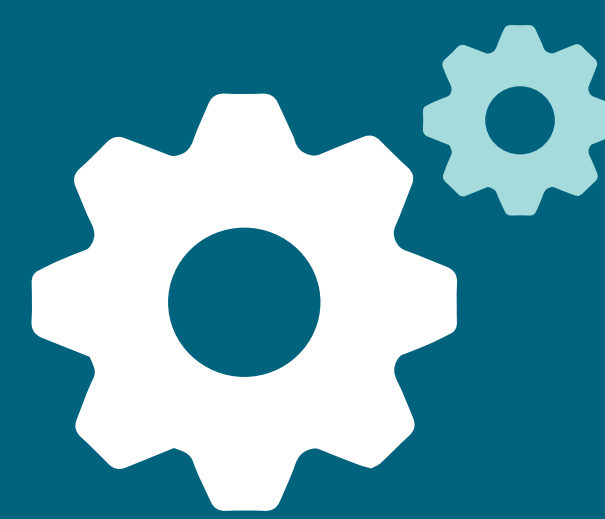
Are completely biodegradable after its useful life under controlled composting conditions (ISO 14885-1:2005).

Are harmless after biodegradation. (OECD guideline 208, plus its modifications in Compostability Standard, EN 13432).

Competitive cost compared to current packages. The final products cost are not be higher than 20 % in comparison with actual packages.



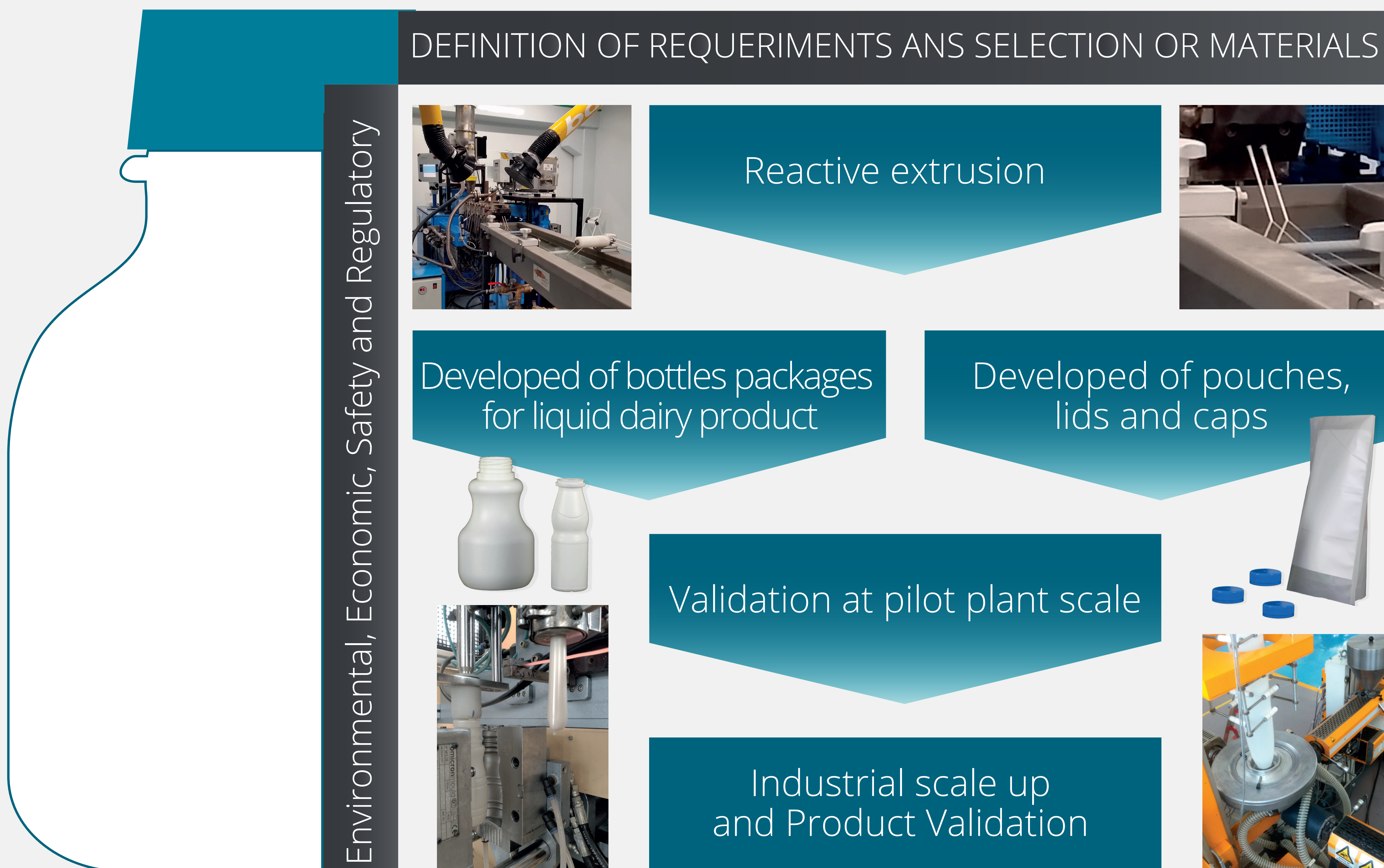
Biodegradable grades  
Reticulate agents



Chemical modification  
by reactive extrusion

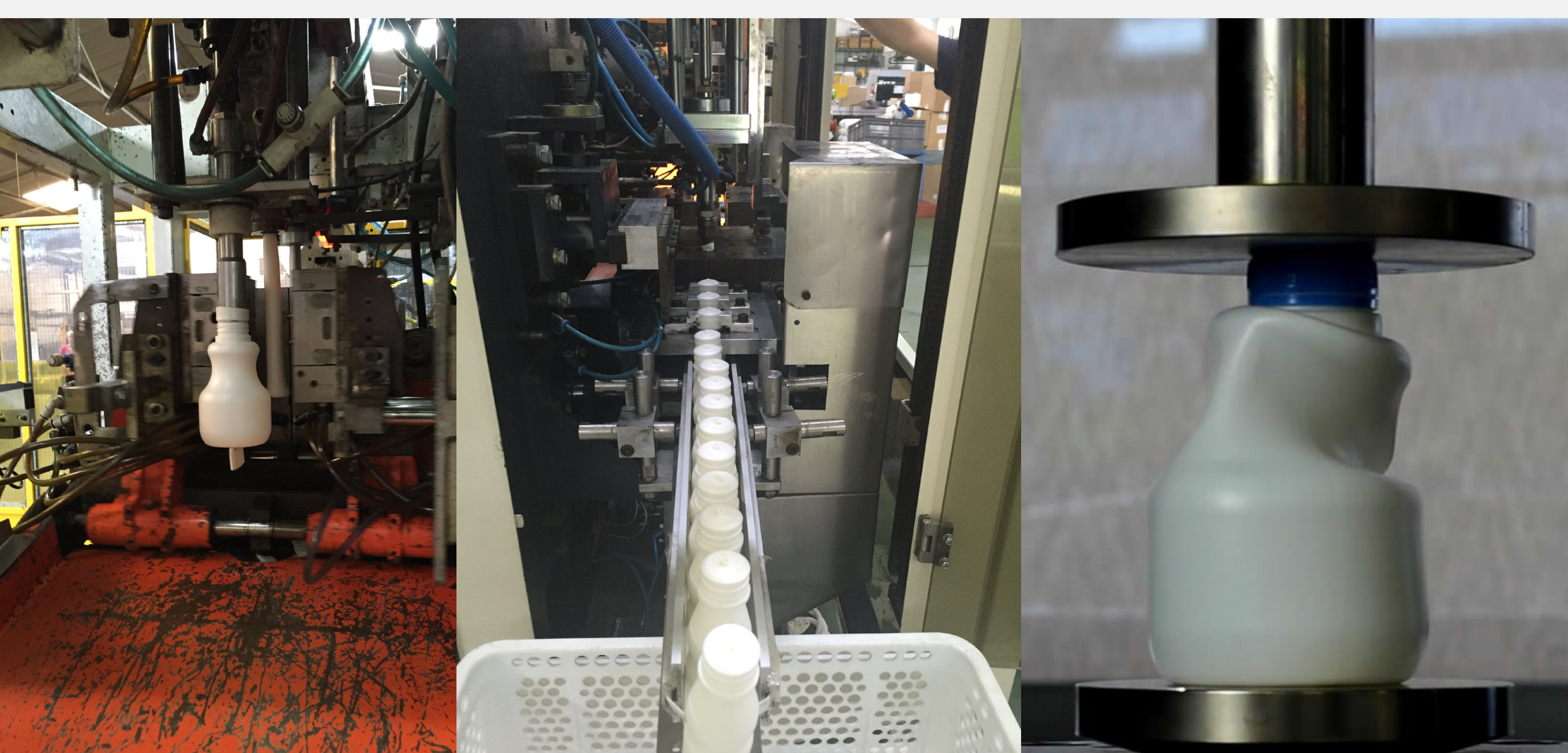
Extrusion process: monolayer  
and multilayer blown film and  
blow molding

Injection process for caps



## METHODOLOGY

The traditional compounding equipment is used in the project to obtain pellets by reactive extrusion from biodegradable material grades and reticulate agents. The chemical modification succeed on biodegradable materials with improved thermal properties and similar mechanical properties to the current commercial materials without affecting the shelf life of the dairy products.



## FINAL PRODUCTS

**Pouches** by blown film extrusion



Bottles by extrusion blow molding: **Small bottles, probiotic product, Big bottles for milk**



**AUTHOR**  
Chelo Escrig (AIMPLAS)

## COORDINATOR



## PARTNERS

BIOBOTTLE transnational consortium is composed by 5 SMEs together with the technological centers OWS (Belgium), CNR (Italy) and AIMPLAS (Spain). The different partners represent all the roles required to cover the entire value chain of the project to be industrialised.

## ASSOCIATED BENEFICIARIES

