Isolago

Our projects

PlasticoLight

Beneficiary Entities

ISOLAGO

universidade de aveiro

Cofinanced by

COMPETE 2020

PORTUGAL 2020

UNIÃO EUROPEIA
Fundo Europeu de Desenvolvimento Regional

Low-density fillers for plastic formulations

With the PlasticoLight project, we intend to develop low-density fillers for plastic formulations, using porous raw materials and morphological and physical and chemical modification processes through the use of polysaccharides and the incorporation of porous structures.

In the plastics industry, the use of fillers makes it possible to improve the final material's mechanical performance with concomitant reduction in production cost. Calcium carbonate (CaCO3) is one of the most used fillers due to its low cost, good stability and non-toxicity. Usually, between 20 and 40 % is used in plastic formulation. However, its high density (2.73 g/cm3) compromises some applications in which polymers need to be lightweight and greatly conditions savings in the polymer percentage.

Isolago - Indústria de Plásticos, S. A. (Pontével), whose activity focuses on the production of plastic compounds, is the project's leading company. The University of Aveiro is the copromoting entity, providing a multidisciplinary team covering the areas of Polysaccharide Chemistry, Organic/Inorganic Chemistry and Materials Science and Engineering.

When transposing the technology to the pilot/semi-industrial scale, the eggshells will be supplied by the Derovo group (Pombal), pectate will be recovered from apple pomace, a by-product of Indumape - Industrialização de Fruta, S. A. (Pombal) and alginate will be supplied by ALGAplus (Ílhavo), so these companies will be partners in this project.

In turn, a selected Isolago customer will perform the final assessment of the low density fillers produced, focusing the resulting materials thermomechanical and structural properties.

Objectives

1. MODIFICATION OF CaCO3 PARTICLES
Incorporation of polysaccharides such as pectate and alginate.

2. DEVELOPMENT OF POROUS STRUCTURES FROM EGG SHELLS
Via complexation reactions or coating processes, in the presence/absence of supercritical carbon dioxide.

3. PURIFICATION AND MORPHOLOGICAL AND PHYSICAL AND CHEMICAL CHARACTERIZATION OF CaCO3 RECOVERED FROM EGG SHELLS

Activities

1. Development of polysaccharide-calcium carbonate hybrids

2. Extrusion and injection of polysaccharide-calcium carbonate hybrids incorporated in polypropylene and polystyrene-based formulations

3. Development of bioplastic compound formulations

4. Prototype and pre-series testing

5. Promotion and dissemination of results

Technical data sheet

Project name

PlasticoLight - Low-density fillers for plastic formulations

Project code

POCI-01-0247-FEDER-33848

Main Purpose

Strengthen research, technological development and innovation

Beneficiary Entities

Isolago - Indústria de Plásticos, S.A. | University of Aveiro

Approval date

8/23/2016

Start date

09/01/2018

End date

8/31/2021

Total eligible cost

EUR 696.631,92

European Union financial support | FEDER

EUR 479.548,92