

FOAMEX

Development of a stable extrusion foaming process for Polylactic-acid (PLA)

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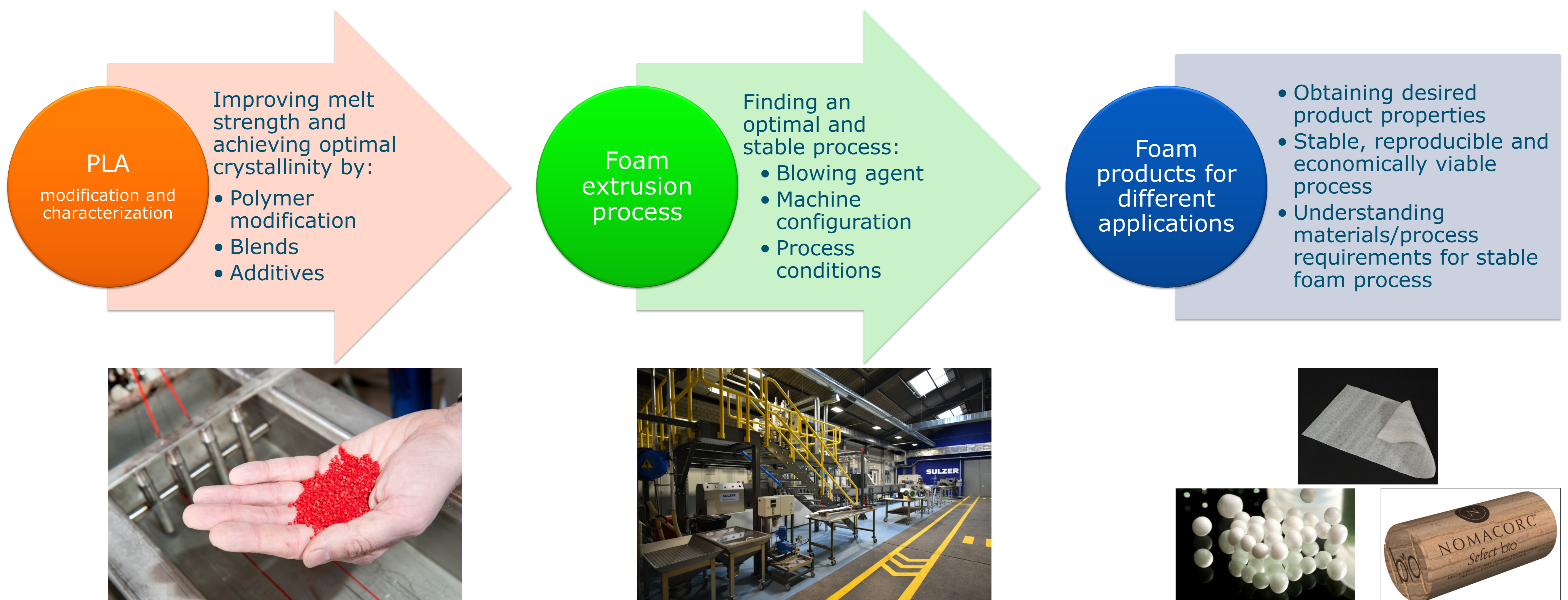
Background

Polylactic acid (PLA) is produced from renewable raw materials originating from crops such as corn and sugar cane. Some inherent properties of PLA have limited its use in several applications. Within the *FOAMEX* project, the participants hope to take the production of PLA based extrusion foams to a next level. There are few examples of extrusion foaming of PLA on an industrial scale. For a commercial breakthrough, improvements are needed with respect to both the material (PLA) and to the extrusion foaming process itself (equipment, conditions).

Objective

The aim of this project is to develop an extrusion foaming process for polylactic acid (PLA). This novel extrusion foaming process should be reproducible, stable, economically viable and scalable. Foam cell size and required density depends on the final application.

Approach



Project partners

• Synbra Technology B.V.

Synbra Technology bv is the preferred supplier within the Synbra Group of standard EPS (Expandable PolyStyrene) beads. Moreover, since about 10 years, Synbra Technology bv is active in the field of expandable PLA beads (EPLA) called BioFoam®. Synbra Technology bv is the materials development center within the Synbra Group and has developed a selective amount of special types of EPS beads and EPLA beads whilst maintaining and strengthening its skills base in polymerization, coating technology, X-EPS extrusion and related processing know-how.

• Nomacorc

Nomacorc is the world's largest producer of alternative wine stoppers with a yearly production of over 2.4 billion synthetic ("plastic") closures a year. Products are based on proprietary co-extruded low-density polyethylene foam technology. Nomacorc has recently introduced its zero-carbon footprint product called "Select Bio Series". Nomacorc wants to extend their portfolio by developing a biodegradable and biobased product.

• Sulzer Chemtech Ltd

Sulzer Chemtech, one of the three divisions of Sulzer, is a leading player in the fields of process technology and separation towers, as well as two-component mixing and dispensing systems. Sulzer Chemtech has developed a continuous production process for expandable polystyrene (EPS). In 2014 Sulzer Chemtech acquired a company specialized in extrusion lines for polymer foam productions and now is able to offer know-how from 30 years of development work in the foam industry.

• Wageningen UR - Food & Biobased Research (WUR-FBR)

WUR-FBR is already active in the field of bioplastics for more than 20 years. In the past few years, WUR-FBR, industrial partners and research institutes have succeeded in turning PLA into valuable biobased alternatives to traditional plastics. Developing new PLA formulations and products thereof is a key activity in the portfolio of WUR-FBR.

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