

1. Replace fossil fuels in the tomorrow's materials

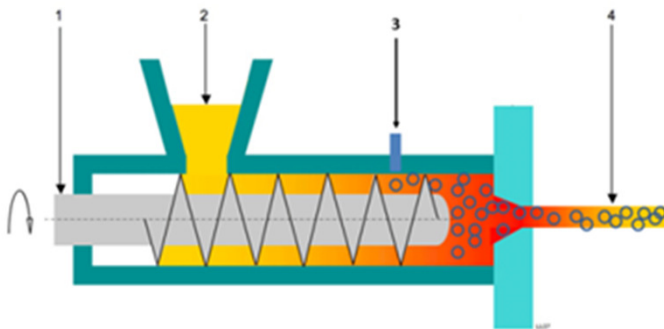
Foamability and polymer characterization of cellulose derivatives

PROJECT OUTLINE

Replace fossil-based raw materials with modified, renewable hemicelluloses, for producing advanced, tailored foamed materials. The goal for the SmartFoam-project is to produce foams with tailored functionality, primarily regarding flexibility, degree of hydrophobicity and adsorption capability, for applications within the health care and packaging sectors.

MASTER THESIS PROJECT

This project aims at producing biopolymer foams, evaluate foamability and to characterize the cellulose derivatives. HME-HPMC and HPMC will be used in the project as the starting material. The starting materials (the biopolymers) will be cross-linked to increase the molecular weight of the biopolymers. Citric acid and/or glutaraldehyde will be used as cross-linking agents. The unmodified polymers and the cross-linked polymers will be characterized with SEC (size exclusion chromatography) and viscometer to characterize the molecular weight distribution and the intrinsic viscosity of the different polymer fractions. The produced foams and the foaming process will be characterized with regard to foamability, how well the foams can sustain pressure (compression test) and how is the foam formed (cloud point).



1. Rotating screw
2. Polymer inlet
3. Gas injection or foaming agent
4. Final foam structure



CONTACT

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