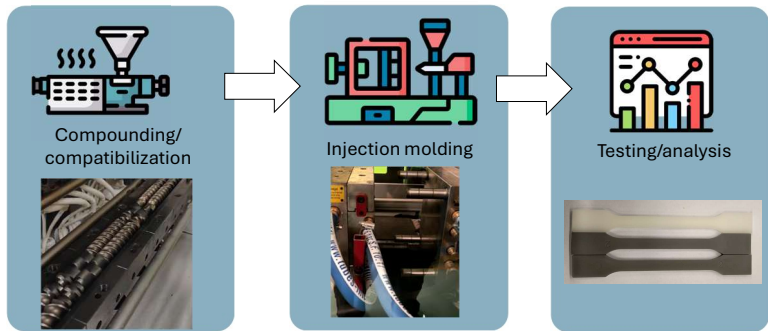


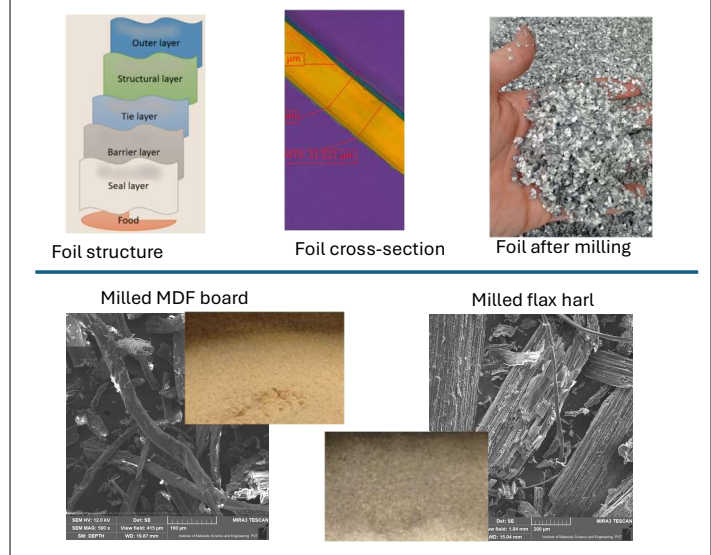
The management of multilayer foil waste and lignocellulosic fillers in the Injection Molding Technology of Polymer Composites

Summary

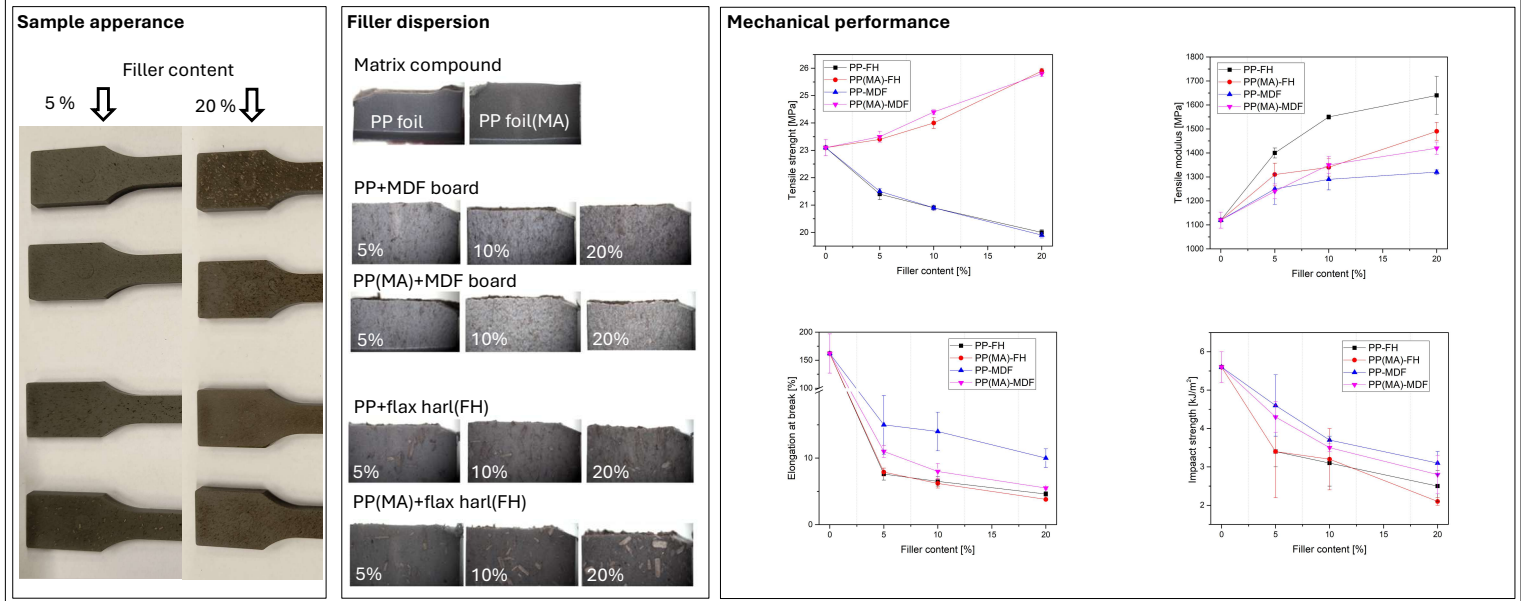
This study focuses on the use of multilayer foil in the production of composite materials with a polymer matrix in the form of polypropylene (PP), with the addition of the compatibilizer MAPP, as a potential method for waste management. The poster discusses the basic information related to the research concept, preparation methodology, and the obtained results. The prepared wood polymer composites were prepared with the use of two types of fillers, where the milled density fibreboard (MDF) was compared to the flax hart filler. In both cases, the filler weight content was 5, 10, and 20%. The full evaluation procedure consists of many testing areas, like rheology, thermal analysis, and heat resistance; however, the main research study was focused on the evaluation of the mechanical performance, especially in the context of the MAPP modifier efficiency.



Sample preparation



Results



Conclusions/Future studies

The already conducted studies clearly proved that the utilization of the medium-density fibreboard waste can be successfully used as a replacement for the other types of wood-polymer composites. The particular case of polypropylene-based materials also confirmed the recycling possibility of multicomponent foil waste. The trial studies should be supplemented with future studies, where the planned research will be focused on the preparation of highly-filled composites, while additionally the research will be also aim to increase the toughness and heat resistance of the developed materials, where the planned studies will be focused on the addition of mineral fillers and elastomeric compounds.

Project description

The scientific goal of this project is to develop innovative solutions for the efficient management of bulky waste, primarily wood and wood-based materials, as well as polyurethane foams used in the production of furniture and upholstered products, which constitute a significant portion of this waste stream. The solutions will involve the preparation of innovative components for the production of polymer-wood composites and wood-based materials in granular form.

From a social perspective, the project aims to strengthen public awareness of environmental issues and disseminate knowledge, including knowledge gained through the project, in the field of recycling and waste management. These goals align with the "Science for Society II" program by supporting higher education and research entities in building collaboration with entities operating in the socio-economic sphere and in developing and implementing solutions that benefit local and regional communities.