

Development of new packaging materials using cellulose micro and nanofibrils



1st
year

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Converting Biomaterials Packaging

Food-contact packaging materials are currently manufactured either in plastic or in paper/board treated with petrochemical polymers because of their good barrier and mechanical properties and their low cost. However, these petrochemical polymers have major drawbacks: their origin, their cost index-linked to oil prices, their poor recyclability and their negative environmental impact. With today's view toward sustainable development, there is increasing interest in replacing these polymers with materials derived from renewable resources.

Studies have shown that the use of MFC/NFC is promising for the development of stronger and lighter materials with improved functions. This PhD thesis was performed in the framework of the European project SUNPAP which aims at developing at industrial scale the use of micro- and nano-fibrillar cellulose in the modern papermaking. The present study are carried out to the development of new packaging materials using cellulose micro- and nanofibrils.

The research programme is divided into four main parts:

- The optimisation of MFC suspension
- Development of model cast films
- Development of papers at lab scale
- Implementation at pilot scale