

# Defence of a Doctoral Thesis in Chemical Engineering

## Aspects of optimizing pulp fibre properties for tissue and packaging materials

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#### Abstract

To improve the competitive advantages of pulp fibre-based materials for tissue and packaging over fossil-based products, it is essential to increase knowledge of the selectivity of the cooking and the chemimechanical processes by optimizing the unit operations of impregnation, cooking and refining. A general goal in pulping processes is to achieve as efficient and even fibre separation as possible. A key to achieving this is to improve impregnation uniformity. In the case of chemical pulping, we need to study how a more even distribution of lignin at the fibre level via easily impregnated wood chips can be achieved using classic measures such as equalized hydroxide ion concentration, increased initial sulphide ion concentration, low sodium ion concentration and a low cooking temperature combined with an oxidative and reductive environment. In the case of chemithermomechanical pulp (CTMP) manufacturing, we need to achieve as even a degree of sulphonation as possible at the level of the individual fibres by means of improved sulphite ion distribution within the wood chips before they are pre-heated prior to entering the refiner.

Read the whole abstract on [www.miun.se](http://www.miun.se)

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