

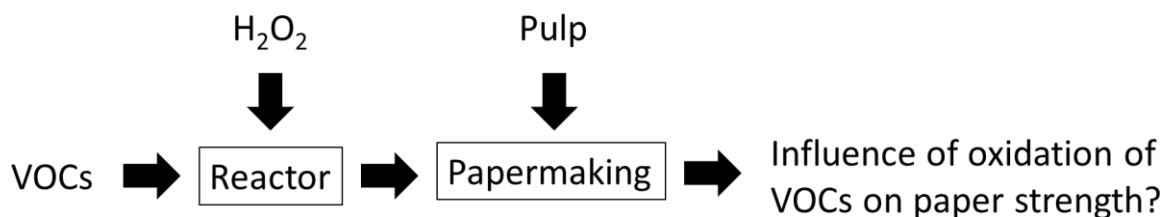
The current trend in the packaging industry is to reduce the weight of the packaging materials, *i.e.* develop relatively stronger materials. In the case of papers and boards the bonding between cellulosic fibers plays a crucial role as it largely defines the strength properties.

It is found that the volatile organic compounds (VOCs) disturb this bonding between cellulosic fibers. These VOCs are generated during the pulp cooking process and some of them enter to the papermaking together with the produced pulp.

The aim of this master thesis project is to investigate whether oxidation of VOCs by  $H_2O_2$  treatment reduces their harmful effect on paper strength. Particularly the following two research questions are addressed:

1. How efficiently the oxidation of VOCs takes place during  $H_2O_2$  treatment? This is investigated with a pulp bleaching reactor.
2. Does the oxidation of VOCs improve paper strength? This is investigated by laboratory papermaking.

This work is done in close cooperation with our industrial partner within the frame of the project CD Laboratory for Fiber Swelling and Paper Performance.



*Scheme of experiments: influence of oxidation of VOCs in pulp by  $H_2O_2$  treatment on paper strength*

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