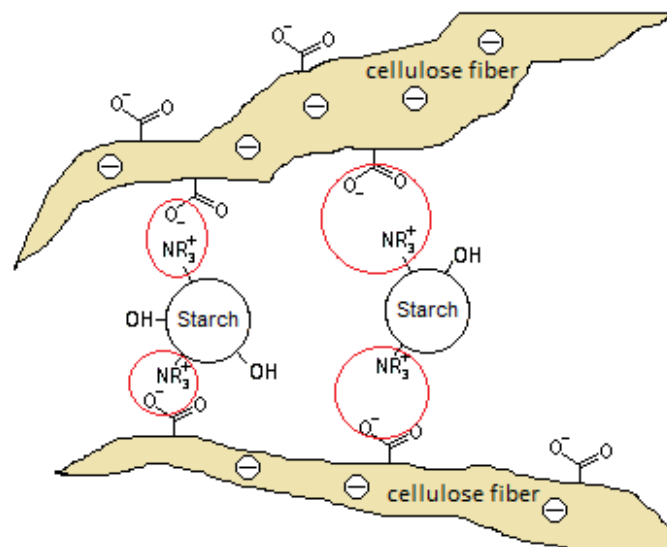


The current trend in the packaging industry is to reduce the weight of the packaging materials, *i.e.* develop relatively stronger materials. In the case of papers and boards the bonding between cellulosic fibers plays a crucial role as it largely defines the strength properties. Thus, the interfiber bonding is normally enhanced to produce stronger paper and board by the addition of dry strength agents, such as cationic starch.

In order to contribute efficiently on interfiber bonding strength, the retention of cationic starch should be high during paper and board forming process. This means that the cationic starch should efficiently adsorb to anionic cellulosic fibers (figure) and not flush away with the filtrate.

The aim of this project is to investigate how other process chemicals (*e.g.* aluminum sulfate) and alien substances (*e.g.* wood extractives) influence on the retention efficiency of cationic starch to the cellulosic fibers. This is done by simulating the papermaking forming process in laboratory with a DFR (Drainage Freeness Retention) device and subsequently measuring the retention of cationic starch with a UV-vis spectrophotometer.



*Improving bonding between cellulosic fibers by cationic starch (Markus Gschiel, Master's Thesis, 2020)*

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