High consistency enzymatic fibre modification for textile processes

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Good reactivity and tailored molecular weight distribution are desired properties for cellulosic raw materials in the production of regenerated fibres. Enzymatic fibre modification at high consistency is a novel approach for making highly reactive pulp for further processing. The treatment opens up the compact fibre structure and enables control of the molecular weight distribution of cellulose using mild treatment conditions and environmentally benign catalysts. High consistency conditions enable the use of considerably lower enzyme dosages than what has been possible previously. Different types of hydrolytic and oxidative enzymes have been used for modification of dissolving and paper grade pulps and the role of enzyme type in the processes will be elaborated. Batch- and continuous-type high consistency reactors can be applied for scaling up the pre-treatment process. This presentation summarizes the recent advances in high consistency enzymatic fibre modification for textile processes.