

Bio-based hotmelt adhesives for paper and cardboard packaging

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The packaging market in Germany is a constantly growing market in which paper products play a central role. In many aspects, these claim to be an ecologically sensible alternative to plastic packaging due to their renewable basis and opportunity of multiple recycling. They could underline such a claim in the future, if the mostly indispensable adhesives used in their manufacturing process were also based on renewable raw materials. Since the development of thermoplastic starch, efforts have been made to use starch and carbohydrate-based polymers for hot melt adhesives. Such products are described in numerous publications and patents. However, they have not entered the market yet.

Within the recent "Glykopack" project we showed that by varying thermoplastic starch and other bio-based main components, it was possible to develop a hotmelt adhesive that is at least equal to synthetic hotmelt adhesives in almost all important product and processing parameters. The results will be presented in this lecture. Additionally, the follow-up project "BioGlyk" will be presented, which mainly aims at solving the remaining questions such as the hotmelt thermostability and efficient production pathways.

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Martin received an MSc in Chemistry in 2011. During his PhD studies (2011-2015) in Organic Chemistry at Technical University of Dresden he developed synthetic routes to several bioactive sesquiterpenes with anti-tumor activity. Since 2014 Martin is employed at Papiertechnische Stiftung (PTS) in Heidenau. Starting as a project manager in the field of advanced chemical modification of pulp fibres and polysaccharidic materials he became Head of Department Composites & Modification in March 2017. His research focus is on the development of novel cellulose based materials and the corresponding process technology.