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## **LATEST ADVANCES IN RESEARCH AND DEVELOPMENT OF THERMOPLASTIC STARCH ESTERS AND THEIR FORMULATION INTO HOTMELT ADHESIVES**



The biopolymers cellulose and starch are among the most important renewable raw materials used for the development and production of functional polymers. Due to their long history of use, they are available in consistent quality and purity. However, the full potential of these natural substances has not yet been fully exploited. Their molecular and supramolecular structural properties can be widely varied through targeted chemical modification of the hydroxyl groups and specifically adapted for a wide range of applications. Starch esters are particularly interesting products, as they can gain thermoplastic properties through their chemical modification. In particular, starch esters obtained by reaction with long-chain fatty acids exhibit very interesting properties. Due to the hydrophilic as well as hydrophobic molecular components, the new starch esters are compatible with a particularly large number of available adhesive raw materials. In recent months, the manufacturing process has been significantly improved, particularly with regard to the solvents and reagents used. Starch esters can be produced which, when formulated to adhesives, enable the property profiles of conventional hotmelt adhesives, but also of PSA hotmelts in particular.