For the manufacture of wood-based products, aminoplastic resins containing formaldehyde are primarily used as binding agents. In view of the fact that formaldehyde has been classified by the European Commission as a mutagen and carcinogenic substance, it can be assumed that for the production of wood-based materials, solely low-formaldehyde adhesives will be permitted in the future.

The goal of the FNR-funded project (FKZ 22027514) is therefore the development of an alternative in the form of an innovative low-formaldehyde and, moreover, bio-based dispersion adhesive for the production of wood-based materials on the basis of polyvinyl acetate (PVAc) with radical polymerizable sugar derivatives.

Consequently, a low-emission adhesive which has already proved itself in the furniture industry should be combined with a renewable raw material.

The starting point is to raise the glass transition temperature (Tg) of the PVAc glues through copolymerization with sugar derivatives, which have a significantly higher Tg. In addition, copolymerizates should also be produced with petrochemical raw materials such as methyl methacrylates, in order to develop an adhesive which is not too expensive.

In addition to the Fraunhofer WKI, one adhesive manufacturer (Fa. Jowat SE) and four wood-based materials manufacturers are participating in the project. These companies represent the sectors of particle board, fiberboard and laminated wood manufacture and produce the wood-based materials production-characteristically following preliminary tests in the Fraunhofer WKI’s own technical center.