

Bio-based adhesive

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Baumer Group

Research project SUGRA
(Sustainable Gluing with Renewable Adhesives)



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Research project SUGRA

To reduce CO2 emissions and global warming, the transition from fossil carbon to renewable carbon is crucial.

Bio-based adhesives are a promising complement to traditional dispersion-based adhesives and could improve the environmental performance of paper-based packaging.

However, many bio-based adhesives and conversion technologies are still in the experimental or pilot phase, which poses significant challenges for industrial implementation and makes decision-making uncertain.

Starch, a natural and abundant polysaccharide derived from various sources such as corn, wheat, tapioca and potatoes, is increasingly used in industrial applications, including papermaking. Starch also has a small impact on the recycling of paper-based packaging.

Starch has been used as an adhesive since ancient Egyptian times and is still used today for bonding flexible, unstressed paper packaging. However, due to its low initial tack and long setting time, it is not suitable for high-speed packaging machines such as folder gluers and can only be used to a limited extent for bonding rigid packaging due to its flexural rigidity. The Sugra project aims to overcome these limitations and improve the performance of starch adhesives for a wider range of packaging applications.

For the first time, the SUGRA project will not only optimise the adhesive, but also match the adhesive and the Baumer hhs application system to achieve optimum performance.

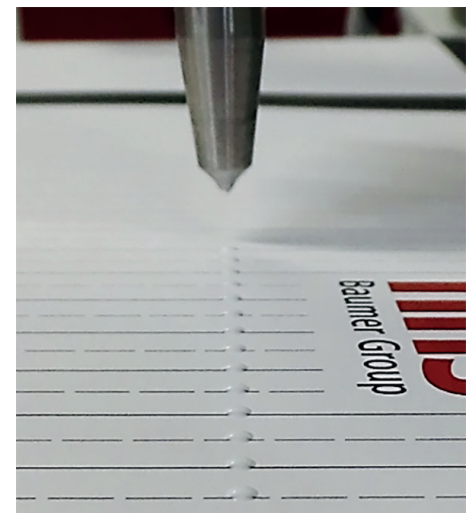
Research partners are:

Fraunhofer-Institut für Angewandte Polymerforschung (IAP)

Fraunhofer-Institut für Schicht- und Oberflächentechnik (IST)

Forschungstiftung der Papierindustrie/ Papiertechnische Stiftung (PTS)

Baumer hhs GmbH



The SUGRA research project is funded by the Fachagentur nachwachsende Rohstoffe e.V. (FKZ 2220NR168).

Research targets:

- 100% bio-based
- Fully biodegradable, food compliant and soluble in the packaging recycling process (certified by the Paper Industry Research Foundation)
- Viscosity and rheological behaviour designed for nozzle applications
- Suitable for very small application quantities (dot application)
- High application temperature range
- Application speeds of up to 450 m/min
- Setting times and adhesive forces comparable with conventional dispersion adhesives in the above-mentioned application area

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FNR
Fachagentur Nachwachsende Rohstoffe e.V.

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages